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APR 17 1939

LAND PLANNING PROBLEMS IN THE WESTERN STATES

A radio talk by Walter E. Packard, Regional Director, Land Utilization and Rural Resettlement Divisions of the Federal Resettlement Administration, during the Western Farm and Home Hour, Thursday, August 1, 1935, over Sta tion KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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Land planning is not concerned wholly with the soil. It deals with human beings as well as with their environment. The relationship between land and people presents the real problem in any fundamental land planning program. Soil erosion, for example, would not be more than an interesting geological process were it not for the fact that soil is a source of wealth which must be preserved to preserve ourselves. Water might run into the sea unchecked forever; forests might burn, and minerals disappear without causing comment, were it not for man's interest in their use.

Land planning is not new. In the early development of society planning was confined largely to the individual who had to work out his salvation in a world of competing human beings. As population grew, social problems developed and people joined in preserving hunting grounds, or made agreements on the use of pasture lands. Social governments grew up and nations developed with laws and regulations governing man's relation to land. Attention is focused on planning as a conscious process under present conditions, not because it is a new phenomena, but because social planning, as contrasted to individual planning is quite rapidly becoming more and more necessary in order to protect the rights of the individual. Social planning requires a social consciousness which must be developed if present problems are to be intelligently solved.

The creation of well being is the primary objective of all planning activities. Well being depends, in part upon production as a means of securing necessary consumable goods. We have learned recently, even though it has taken us a long time, that overproduction may have serious consequences economically, and that it is unwise to expand our production machine beyond requirements. This fact must be kept in mind when expansion of area is urged as a means of providing work relief. A proper balance of production and consumption must be maintained.

Well being depends also upon a proper distribution of the goods produced. It is this problem which is giving society most concern at present, for it is obvious to anyone that some mistake has been made in planning, where millions of men and women are idle and in want in the face of an abundance of goods.

Neither production nor distribution, however, can continue without adequate conservation of both the human values of society and the primary sources of raw material which land, in the abstract, represents. These three problems, balanced production, proper distribution, and adequate conservation of resources, together form the real core of the planning problem in any area.

In the western states the specific problems which land planning undertakes to correct are not unique. The range of interests involved in land planning is well illustrated by an enumeration of a few of the 26 subjects to be

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discussed in the series of talks of which this is the first. Here are some of them:

"Land Planning in relation to General Economic Planning;
People on the Land;
Type of Farming;
The Tax Structure;
Mechanical Progress Affecting Land Use;
Water Conservation;
Irrigation Agriculture;
Western Reclamation;
Forest Management;
Western Indian Needs;
Recreation; and to
Wild Life Conservation."

The presentation of this list gives a rather comprehensive picture of the Land Planning problems in the western states which is the subject of this particular talk, which is but an introduction to those which are to follow.

The possibilities of positive action are tremendous. Conditions in the West afford assurance of success if society acts wisely. The relative certainty of securing a crop of irrigated land, together with the high production per acre, and the wide variety of crops, which irrigation permits, make irrigation farming relatively stable and attractive. The trend of eating habits toward larger consumption of fruits, vegetables and dairy products emphasizes the importance of irrigation as it is increasing demand for the crops which are especially adapted to irrigated lands. Although population growth, from a national standpoint, is at a standstill and may soon actually decline, there will be a steady flow of people to the irrigated valleys of the West for generations to come.

The immediate problem is to secure some balance in the present absurdly maladjusted economic situation. Land Planning is a means of meeting intelligently that portion of the whole problem which deals directly with the development and conservation of natural resources. It does not offer an answer to all the problems presented by our present difficulties by any means, although it holds a position of importance in relation to the whole.

The Resettlement Administration is charged with the responsibility of carrying out a planned program in Agricultural Readjustment designed to meet the problems which can be met by such a program. The first responsibility is to study the land situation in detail, in order to inventory and catalog the resources available and to find out where the problem areas are, and what can be done to correct the trouble. Most of this work has already been done. A wealth of material is available for analysis. Various agencies have been at work on this phase of the problem.

The Land Utilization Division which has the responsibility of this planning work will deal largely with the problems at the fringe, where the maladjustments occur, so far as the Southwest Administration is concerned.

A second responsibility is an immediate one. It concerns the farm families now in distress. They may be in difficulty because of drought, eroded soil, lack of irrigation water, poor drainage, bad soil, too large or too small holdings, or it may be due to poor management. Whatever the cause, something must be done to salvage the human values.

These situations may be improved in some cases by the purchase of lands now in improper use and the adjustment of that use, together with a relocation of the family involved. It may mean the purchase of dry land which should be in range, or it may be the purchase of the poorer parts of irrigation districts and the consolidation of irrigation water on the better lands. In many areas over-optimism has in the past spread a limited supply of water over too large an area.

The Rural Resettlement Division of the Resettlement Administration is charged with the special responsibility of handling the rehabilitation cases, where farm families on relief may be saved from foreclosure by carefully planned loans, accompanied in cases by adjustments in indebtedness. This Division will also handle the problem of relocating families where success under present conditions is impossible. This is not to be a paternalistic venture. Land Planning should go deeper than a mere surface assistance. It should deal with the problem in such a way that the causes of the difficulties are corrected.

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LAND PLANNING IN THE INTERIOR VALLEYS OF CALIFORNIA

A radio talk by L. Deming Tilton, Director of Planning, California State Planning Board, during the Western Farm and Home Hour, Thursday, August 15, 1935, through Station KFI and nine other Stations associated with the Western Division, National Broadcasting Company. (From Los Angeles,)

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Those who are familiar with the geography of California know that the central portion of the state is a huge trough, a vast expanse of flat land lying between the towering Sierra range on the east and the hills and mountains along the coast. Fifteen million acres of this valley are classified as agricultural. These lands constitute more than sixty-three per cent of the total agricultural area of the state.

Figures, no matter how large, cannot indicate the importance of the Central Valley to California or its significance in the agricultural economy of the nation. No one knows what this region really means ultimately in terms of human welfare. No comprehensive inventory of its resources has ever been made.

Those who are familiar with the Valley believe that with adequate water, the abundant power already available and proximity to markets and cultural centers, it can provide the highest standard of rural life in the nation. To achieve such enviable position, however, the Valley must be planned and developed to function as an organic unit.

The State has only recently concerned itself with basic questions of land utilization and undertaken planning in this area on a proper scale. The Division of Water Resources has made an extensive and thorough study of Valley water problems. The capable engineers of this bureau have proposed a plan for a far more equitable distribution of water, which compares favorably in conception and magnitude with the great public works projects of the Federal government and of other nations. The floods of the Sacramento River and tributary streams are to be stored and made to flow under control to those sections of the Valley now deficient in water supplies. This is courageous planning. It reflects the degree of responsibility which the state should have in the development of areas of such great potential value.

The completion of plans for an assured and more ample water supply, however, must be regarded as but the first stage of a far-sighted, comprehensive planning program. There is need for more complete data regarding soils, drainage, climatic factors, land values, debts, marketing facilities, and cultural resources. The range of crop types adapted to the region should be established. Production studies are required so that the output of this region may be balanced with that of other irrigated areas against present and prospective market demands.

Out of such a coordinated planning effort will emerge a broad picture of the future of this great regions. It will show an orderly, systematic,

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distribution of land uses and a proper complement of essential service facilities, such as highways, schools, utilities. Towns and communities will be planned in size and character to meet the requirements of the surrounding region. Areas of related interests will be designed to function as commercial and cultural units.

The plan will foster more favorable city and county relationships. It will tend to prevent over-development, extravagance and waste and relieve people of the debts which generally follow such unwise efforts. It will provide everyone interested with a better understanding of the choice which lies before the Valley: on one hand, a sound, well-balanced, disciplined growth directed according to plans carefully prepared with regard for the welfare of all; or, on the other hand, disorder, confusion, failures, and blasted hopes, with the losses and headaches that attend every unsound land development scheme.

It is obvious that many agencies will be required to cooperate in the preparation of a plan of this character. The Federal government as a custodian of a national plan for agriculture is directly concerned with plans for large-scale farm expansion in any state. It is highly important that the Department of Agriculture serve as an adjusting agency in planning of this character. The Bureau of Reclamation will bring to the program valuable experience and information derived from the operation of irrigated areas in other states. The Forest Service has a part to play in the management of watershed areas and pastures, essential to an assured water supply. Various state departments and the universities will contribute data and guidance in the preparation of plans. The State Planning Board may serve as a cleaing house and coordinating agency.

The immediate step to be taken is for the state itself to recognize the complex problems arising in this vast area and to assume responsibility for the solution of these problems. The State must start the kind of planning that is required. The Valley is all California. There is no need to wait for the Federal government to act because the region overlaps several states, as is the case in the Tennessee Valley.

Evidence is accumulating to show the need of greater official interest, in planning problems of the Valley. The debt structure is now in need of readjustment; the carrying out of the water plan will tend to aggravate these conditions.

Population problems are beginning to appear. There is concentration in places without adequate support in the way of employment. Extravagant promotional effort in the interest of population growth is a constant menace to the economic balance of the region. The extensive use of migratory labor introduces serious social problems. The tapeworm towns now developing along the main highways are not a credit to such a region as this.

Already speculation in lands has started. As work on dams and canals gets under way, real estate activity of questionable character, unless controlled, will absorb millions in savings and deprive the Valley of funds required for essential improvements. Lands will be cut up and offered for sale in parcels too small for efficient and profitable use. The agricultural lands are not all of equal quality and value; these differences must be recognized in any sound plan of valley growth and development. All these and similar subversive activities will appear and the Valley will be afflicted as never before if the State does not give orderly guidance and protection to it in its new development.

The Valley is entering a new phase of its life which clearly calls for planning and the economics and beneficial returns which flow therefrom. Until comparatively recent years, this vast domain was virgin prairie. The present pattern of land uses is relatively new. The rectangular arrangement of orchards, alfalfa and grain fields, vineyards, gardens and urban communities as seen from an airplane, represents largely the product of present day social and economic forces, operating with little coordination or control. Unsound disorderly developments have not greatly mattered during the years in which the valley has been emerging from the cattle ranch stage.

It can now be seen that this agricultural empire has extra-ordinary significance in the national plan. There is promise here of development of an extensive rural community of outstanding social value. Land conservation, efficient use/and intelligent management of land resources, and harmonious community development form the basis of this attractive picture. The valleys need land use planning and the people of California will be wise to see that the job is undertaken soon and is done well.

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APR 17 1936

LAND USE SERIES:

LAND PLANNING ALONG THE NORTHWEST PACIFIC COAST

A radio talk by H. H. Henry, Federal Land Bank, Spokane, broadcast in the Western Farm and Home Hour, Thursday, August 22, 1935, through Station KGA and nine other stations associated with the Western Division, National Broadcasting Company. (Speaking from Spokane)

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The National Resources Board was established by President Roosevelt as a research and fact-finding agency. Regional boundaries were established and a Regional Director appointed to coordinate the fact-finding and research work. Rex E. Willard was appointed Regional Director of the Pacific Northwest, embodying the states of Idaho, Oregon and Washington. As Director of the Land Policy Section of the Agricultural Adjustment Administration, he was authorized to inaugurate an action program of submarginal land acquisition, as well as a research program. The Hon. Marshall Dana of Portland was authorized to establish the Pacific Northwest Planning Commission to coordinate all planning and research in the states of Idaho, Montana, Oregon and Washington.

In the states of Idaho, Oregon and Washington, land laws were studied and recommendations made to the state planning boards and legislatures for the revision of certain statutes. One of the most important recommendations was for the title to tax reverted lands to rest in the name of the state instead of the county, pending classification for best use. This recommendation failed to pass the legislatures, largely due to lack of information regarding the program.

In formulating an action program, it became apparent that our basic data was very general in nature and not specific. To outline a land program with conditions as diverse as we have in the Pacific Northwest, it is necessary that we have specific information on every parcel of land. Such information can be obtained only by detailed land classification embodying soil, economic and social surveys. With the land classification maps and substantiating data, a community pattern may be worked out to warrant efficient social and public services within the ability of the land to support such services.

We have two distinct problems of land use - the administration of public lands and the best use of private lands. Approximately one-half of the land area of Idaho, Oregon and Washington is directly administered by the Federal Government, approximately 10% by the states and 15% by the counties, leaving 25% in private ownership.

The Federal Government administers its lands through bureaus, such as the Indian Service, Grazing Act, the national forests, national parks and biological survey. The states administer their lands in various manners through sales and leases. Tax reverted lands in most counties are not administered and receive consideration only at time of sale. Very little returns accrue to the county from county owned lands. Public lands held for sale should be classified for their best use before being placed upon the market. Private lands should be classified to determine their best use and a tax base established to insure that best use which will perpetuate such lands in private ownership.

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Taxes probably cause more wrong use of land than any other factor and wrong use increases taxes more than any other factor. Range land is plowed up and sown to wheat in an effort to pay taxes and produce an income. Forests are harvested clean in order to avoid the heavy taxes. As the tax base is changed, taxes increase while the ability to pay decreases.

Settlement restrictions were introduced in one of the legislatures without success. It was proposed to restrict settlement within forest and range boundaries. The ability of such land to pay taxes for the support of roads and schools is small. Such lands, when subjected to an increase in taxation, become unprofitable and are permitted to revert to the counties , decreasing the taxable wealth and leaving a burden upon the other taxpayers to support institutions which under proper land use could be eliminated.

The land use problems of the Pacific Coast are developing rapidly and preventative measures are necessary now. If these problems are permitted to develop costly adjustments must be made. The Erosion Control Service estimates that 36% of our agricultural lands are subject to erosion, 25% of this land has been abandoned and 11% will remain in production only through stringent control methods.

85% of the land in Oregon and Washington is devoted to the production of timber and agricultural commodities. More than 50% of the land area of the two states is suitable only for timber production. Up to 1930, we were depleting our forests at the rate of 45 billion feet per year, while growth was at the rate of 8 billion feet, a net loss of 37 billion feet. Timber pays 63% of the manufacturing payrolls in the two states at the present time.

Without sustained forest yields and conservation of agricultural lands the Pacific Northwest will deplete the two most valuable assets in a few years. With land planning for sustained forest yields and best use of agricultural lands, our farms and timber resources can be made to yield better returns to the operators for ages to come.

The Federal Government is taking the initative in the land planning program. State, counties and individuals should assist in formulating the plans. Planning is not regimentation, but is essentially team work for the betterment of economic and social conditions of society.

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LAND USE SERIES:

LAND PLANNING IN RELATION TO GENERAL ECONOMIC PLANNING

A radio talk by Dr. David Weeks, Professor of Land Economics, University of California, in the Western Farm and Home Hour, Thursday, August 29, 1935, through Station KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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In response to changing economic conditions, humanity has surged across the plains into the last available areas of good land. With the passing of the frontier the surge back and forth between urban and rural areas will probably continue. Unless some method is evolved to curb the violent and erratic swings of the economic pendulum, we must accept this shift in population as we do the ebb and flow of the tide. But must we at the same time accept as inevitable the accompanying cycle of frenzied development and land speculation followed by accumulation of the wreckage of the economic storm, namely, wholesale land settlement disasters, wholesale mortgage foreclosures, and wholesale defaulting of reclamation projects? Or are we going to the other extreme and be so conservative that we cannot see anything good in any kind of development?

The clarifying of these complex questions is very important in land use planning as well as in other forms of agricultural adjustment. The paradox of hungry people and agricultural surpluses; defaulting irrigation projects and demand for new construction; unprofitablemess of agriculture and the landward movement and a number of other equally as inconsistent phenomena are little understood and all continue to obscure the goal which we are striving to reach. There are so many problems, however, which can be solved and so much good that can come from their solution that the land use planning movement has much merit if it does nothing more than select for solution from the maze of problems those which offer both possibility of solution and constructive results. Our resources have been so abundant and our food supply apparently so inexhaustible that we have been unaware of any pressure of population upon the supply of raw materials. We are just beginning to realize, however, that we are drawing on an exhaustible stored supply of minerals, oil, gas, timber, and other products of the land.

Opportunities for an expanding population have become more and more difficult to find and we are faced today with an appeal to our government to provide a substitute for those great tracts of virgin soil upon which hoards of American and foreign people formerly sought refuge at each unfavorable turn of the economic cycle. It is becoming increasingly difficult to find lands of high quality which are not now being used for intensive production or which do not require the investment of excessive amounts of labor and capital to make them productive. Furthermore, expansion of the commercial crop production acreage neither offers attractive opportunities for those who would enter agriculture to make a living nor would such expansion be welcome by those already engaged in agriculture. Business and industry have at least temporarily closed their doors to large numbers who are thus faced with the dilemma of knowing not which way to turn.

In the meantime, communities throughout our back country are threatened with decadence as a result of exhaustion of the resources upon which they depend for their existence.

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Decadence is the aftermath of the period when men with their wives and children penetrated the forested and mining areas, when the woods resounded with the sound of the axe, the scream of the saw, and the laughter of children, when village and country life responded to the stimulating effect of the temporary monetary gains. Bar rooms were filled and fiestas were frequent. Hillsides were cleared, and the fruits of agricultural development were piled upon the table. Gold glittered in the beds of the rivers which were diverted from their courses while the gravels upon which they had flowed were turned over and over.

More hillsides were put under the plow to provide food for the newcomers with their families, their horses, their cattle, and their sheep. Mining activity was diverted from the gravels to the mining shafts which were sunk deeper and deeper, thousands of feet, into the earth, sometimes below the level of the sea.

This became more and more costly, and one after another of the mining shafts was closed, the ground waters rose submerging costly machinery and expensive shaft lining, while the communities supported by them settled into a period of decadence.

The sound of the saw can still be heard, but it comes from a forest which is more remote, while the forest into which it first set its teeth has been burned over again and again in an effort to glean from the cut-over area its contribution of livestock feed.

This hinterland has not only supported a larger local population than it does today, but the abundant resources which have been removed have been sources of wealth important in the growth of distant cities and towns. The safeguarding of the products of the land which still remain to insure a permanent supply of raw materials, the search for substitutes for those which face inevitable depletion, the regulation of the exploitation of these resources in such a manner that their most efficient utilization may be attained, and on such a basis that deserving families will reap the benefits of that regulated exploitation, together with the unexcelled living conditions in this back country, should make it possible not only to permanently provide a livelihood for the people who now reside there, but for many additional families who have found it difficult to make a living elsewhere.

We have proposed a demonstration project in El Dorado County, California, designed to attain these objectives. If this project is carried out, it would convert a neglected cut-over area into a sustained yield forest, an intermittent stream into a reliable water supply by storage, a decadent community into an industrial center, and a short-lived saw mill into a permanent source of employment. Without the water supply and the forest, the industries cannot operate; without the industries there would be no employment;without employment there would be no homes. A portion of the area would be dedicated to part-time farming for those who would also work in the industries and the forest.

Unfortunately much of the land which is needed for forest production has fallen into private ownership. Some is used for agriculture with very unsatisfactory returns. Forests require so long a time to grow that public ownership is the only kind of ownership that will insure the growth of the forest to maturity. Public acquisition of these low-priced lands would make possible permanent jobs in the place of relief jobs, productive land in the place of unproductive land, security in the place of uncertainty. Future returns from forest conservation can thus be translated into present benefits overcoming the greatest obstacle we have had in forest conservation,that is,the long wait before we are able to cash in on the results. Thus land planningcombined with general planning is needed if we are to create human values from the wise use of our land. Through Federal aid, this and many other areas can become a new frontier.

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LAND USE SERIES:

LAND PLANNING IN RELATION TO PEOPLE ON THE LAND

A radio talk by J. Howard Maughan, Associate Land Planning Economist for Utah, Resettlement Administration, broadcast during the Western Farm and Home Hour, Thursday, September 5, 1935, from KDYL, SaltLake City, over ten stations associated with the Western Division, National Broadcasting Company.

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The present program of land planning in the United States is part of a developing planned economy in this nation--a renewed economic order which we call the New Deal. The purpose of the New Deal is to bring renewed economic opportunity to all the people. It is felt by many that with the passing of the free goods of nature, there passed also from the average individual a large measure of the economic opportunity which made America a land of freedom.

It is well recognized that the American nation has come to its present economic pre-eminence over the road of an expanding economy, dominated by the principle of individualism. It should also be recognized that the great natural wealth of this nation is the basis upon which all material progress has rested. In a single word that basis is the land.

When free, land provided the economic opportunity which was craved by all our people. That was in another day. Then we were expanding; expanding our population, expanding our foreign trade, expanding our land and industry; we were in an expending economy and in it the individual found economic opportunity without difficulty.

Thus, not only is the land the foundation of this nation's greatness, but it is sign and symbol of the liberty which America bestows. Of all the liberties offered in the New World perhaps none equalled the freedom to take unsparingly of the natural resources. It may be said with truth that the colonists came to America for free land. The same may be said of the settlers who pushed the frontier inland and across the continent; the pioneers went West for free land.

And so the North American continent was settled and the last frontier disappeared. But the order is changing. We are no longer living in the economy which the pioneers knew. No longer is economic opportunity at hand and unlimited in the form of free natural resources. Further, this generation is burdened with problems which are a heritage from the era of expansion. Amid these conditions of individual frustration and the confusion of mounting economic problems, it is stimulating to see our Government courageously attempting to meet the issue squarely and solve our gorwing problems in the light of a new day.

As applied to land I shall review briefly some of the problems and the remedies proposed:

1. To meet the challenge of land destruction through erosion, the Soil Conservation Service has been created in the United States Department of Agriculture.

2. Mis-use of land or attempted use for purposes to which the land is not adapted is one of the most serious and far-reaching land problems in this country.

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To meet this land problem a program of Submarginal Land Purchase has been instituted by the Government to repurchase poor farm lands. Many millions of acres of such land were homesteaded by individuals in the expectation that the land was fit for cropping. Such mis-use means poverty for the operators and ills for the land. Repurchase will change the crop from grain to grass and remove a potential threat of overproduction in good years.

3. Overproduction, which is unbalanced production or, the supply and demand relationship out of joint, is a direct result of land use. The resulting low agricultural prices are one of our major land problems. An example will illustrate that relationship. Growing out of the World War the United States became a creditor nation and with that, according to Secretary Wallace, lost a world market for the products of fifty million acres. That, we are informed, meant fifty million acres overproduction and contributed largely to the shrinkage of farm prices during the past years. President Hoover's answer was the Federal Farm Board. Many other solutions have been suggested. To meet the situation, President Roosevelt has created the Agricultural Adjustment Administration. At the present time extensive studies are being conducted by that organization in an effort to tie crop production allotments definitely to a planned land use basis.

These are but examples of the problems growing out of land use. The remedies proposed are the expression of land planning. The conditions which have lead up to a state of planning and the form which the planning is assuming, I have attempted briefly to outline as they now exist in the United States.

How will Land Planning affect the people on the land--for good or for ill? Land Planning has a two-fold purpose: (1) The conservation of resources; and (2), the best alternative use for the benefit of the users. Perhaps no one would question the wisdom of conservation as such. The perpetuation of our land resources is the very foundation for a continuing civilization. In that, the individual shares with the group. But as an individual, how will the land user fare from this land planning which is a part of the planned economy?

One school of thought predicts calamity at the end of this planning road, while another school confidently expects a gradual but assured improvement for agriculture and final security rescued from impending chaos which, it is said, will otherwise overtake the industry. In the words of the Secretary of Agriculture, "There can be no turning back from the planned program of agricultural production control ." With domestic requirements increasing so slowly as to become practically a stationary state, and our outside market lost through our debtor-creditor reversal as a nation, the economic fate of the people on the land rests with the success of the program of land use control.

We are no longer in the era of a freely expanding economy, but are being committed to a planned economy. Land planning is a part of that new order. Nor can the last word be spoken on the results of that order. However, this new order with its program of land planning must be recognized as a courageous attempt, to bring again economic opportunity to the American people.

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LAND USE SERIES:

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LAND USE ADJUSTMENT PROGRAM IN THE SOUTHWESTERN STATES

A radio talk by L. H. Hauter, Ass't Director, Region 9, Resettlement Administration, broadcast on the Western Farm and Home Hour, Thursday, September 12, 1935, through Station KPO andnine other stations associated with the Western Division, National Broadcasting Company.

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Land settlement in the western states has taken place under conditions that have only partly fulfilled that much desired goal of having our land and water resources put to their best use. Our land policy assumed that the individual if given a free hand would select wisely and even if a mistake were made the law of competition would soon correct the error. This policy also assumed that the interest of the individual in land use would coincide with the interest of society. Unfortunately these assumptions are only partly true.

Even tho the process of trial and error may bring land into those uses for which it is best suited, adjustments are frequently long delayed, and are made with much human sacrifice. Frequently individuals acting alone cannot bring about the desired readjustment, and even when made they are often delayed until irreparable damage has been done.

As a result of an ill conceived land policy most of the land in the western states was taken up under the various homestead acts in tracts too small for economic operation. Attempts were made to grow crops on land not suited for this purpose. In many such areas the homesteaders have already abandoned their land because of economic necessity. But even when the land has been abandoned as farming land, it does not entirely solve the land problem for it leaves the land in small holdings, not adapted to grazing units, and the tenorship of such land is commonly not inducive to efficient range management. It also leaves the land open for promotion and resettlement which commonly takes place when there are a few favorable crop years, and this again will be followed by distress and abandonment.

In other areas homesteaders are still clinging to their land holdings attempting to eke out a bare existence. Many of these feel quite bitter against the government for having permitted them to settle and spend the best part of their lives on land which does not permit them to make a satisfactory living. The cultivation of much of this land has resulted in serious wind and water erosion with a loss of the top soil, with the result that it will take many years to bring it back to a satisfactory grass cover again.

Another maladjustment of land use in the western states is found in irrigation areas. The construction of ill advised irrigation systems and the overdevelopment of the better ones appears to be the rule rather than the exception. Irrigation systems not able to pay out, result in distress to the farmers who are attempting to pay more than the system is worth. Over development, which puts more land under cultivation than the available water supply will effectively irrigate, likewise cause distress to all concerned.

In the land use adjustment program, which has now been under way for a little over a year, funds have been provided only to set up a few demonstrational projects for the purpose of demonstrating and gaining knowledge on adjustments in land use.

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For the purpose of giving these demonstrations a wide application, projects involving several different types of land use problems were selected in the southwestern states. Four such projects are located in New Mexico, three in Colorado and two in Utah. Demonstrational project proposals have been prepared for all the other southwestern states, but unless additional funds are provided it will not be possible to carry them to completion.

One of the demonstrational land use adjustment projects is located at Hope, New Mexico, where an attempt is being made to readjust the land use in an irrigated area. Because of over development, a failing water supply, and some wasteful use of the water, a once prosperous community had taken on the atmosphere of decadence. The suggestion that a land use adjustment program be inaugurated met with a hearty response from the local people.

A soil and water use survey of the area was the basis for preparing a detailed plan for readjusting the use of land and water. The better land in the area that can be irrigated most economically is to remain in cultivation. Options to purchase the poorer land by the government have been taken. This land to be taken out of production will form a grazing area to be used by the people who remain. The people now living on this land will be given assistance in re-establishing themselves under more favorable circumstances. The water rights of the land purchased by the government will be sold to those living on the land that is to remain to cultivation in order to give them an ample water supply.

Another demonstrational land use adjustment project of a different kind is located at Widtsoe,Utah. Here farmers have been attempting to farm land not adapted to that purpose. The readjustment for this area provides for the purchase by the government of the land on which attempts at farming were being made without success. The land purchased will be developed into a grazing area under governmental supervision and the people now living in the area,most of whom are on relief, are being given assistance in re-establishing themselves under more favorable circomstances.

A land use adjustment project near Colorado Springs,Colorado,involves the purchase of certain land located within or adjacent to the National Forest. Because of the slope of this land,the character of the soil and the short growing season, farmers who are attempting to use this land are not able to make a satisfactory living. Much of the land under cultivation is showing serious effects of soil erosion. It is proposed that the land purchased by the government will be turned over to the national forests for administration under a program of soil conservation. People living in the area who desire to re-establish themselves will be given such assistance.

These three illustrations indicate some of the more important land use maladjustment problems for which a solution is being attempted in the demonstrational land use adjustment project.

Summarizing,the program attempts to bring about the following readjustments: First,to put land to its best use. Secondly,to inaugurate a program of soil conservation in connection with the use of that land. Thirdly,to give assistance to the people now living on the land who are in difficulty because they are attempting to use the land for a purpose for which it is not adapted,either by providing additional grazing land for their use or by helping them re-establish themselves under more favorable circumstances. The general objective is to retain as many people in any area as the natural resources will support under a program of conservation.

There are many areas in the southwest where similar readjustments in land and water use are needed. It is hoped that the projects now under way will demonstrate the feasibility and value of a land use adjustment program so that the program may be expanded to these other problem areas in the years to come.

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Land Use Series:

LAND PLANNING IN RELATION TO TYPE OF FARMING

A radio talk by R. L. Adams, Professor of Farm Management, University of California, in the Western Farm and Home Hour, Thursday, September 19, 1935, through Station KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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"Types of farming" is a term descriptive of the predominating enterprises of crops or livestock which form or may form the pattern of a group of farms in a given community. Thus the type may be dairying or beef cattle or poultry or field crops or orchard fruits. It may be, and usually is, a combination of two or more enterprises. It may consist of commercial farming, backed by the commercial motive. Or it may be part-time farming for income--a combination of farming and some other job or profession. Or it may be subsistence farming--the producing of vegetables, fruits, eggs, milk, rabbits, etc., for use on the family table. It may consist of family-sized farms or of large-scale ("factory" or corporation) farms.

But a type of farming to be successful must conform to certain well-established farm management principles. These principles should be fully understood and utilized in order that land planning shall proceed in an orderly, adequate, and satisfactory manner.

Just as a "chain is no stronger than its weakest link," so is any scheme of planning no stronger than its weakest factor. A proper type of farming is based first and foremost upon a size of farm that under the prevailing, planned, or possible type of agriculture shall produce a gross income large enough to insure to the operator enough money to buy the necessities of life, some pleasure for himself and family, pay operating expenses, maintain capital, and liquidate any indebtedness incurred in connection with his farming business. This requirement can be met only when farm enterprises are chosen which are suited to the environmental conditions--soils, climate, and topography, to biological influences -- insects, plant or animal diseases, weeds, rodents, and other pests; to the skill, ability and physical capacity of operators; to the available supply of labor when labor must be hired in addition to that furnished by the operator, his relatives, or other unpaid labor; to the available equipment; to the requirements of available markets; to available capital; and to relative earnings. To bring about a successful type of farming means that many tests must be made before enterprises and combinations can be found which promise maximum earnings under the prevailing environmental conditions, operators' capacity, and financing. Farms of a sufficient size so that the volume of business shall result in a gross income large enough to take care of all needs is paramount--these needs consisting of family living, farm expenses, maintenance of capital, and repayment of debts. Thus the direction that land planning should take, from the farm management point of view, is both physical and economic. Physical in that soils, climate, and pests may create limitations in choice of enterprises, ranging from ideal or so lacking in some regard that they taper off to marginal or submarginal. Enterprises which are certain to be marginal or submarginal had best be left alone. Economic in that different enterprises have different income possibilities and financing requirements. Economic tests determine to what extent those enterprises possible under the physical and biological conditions can show a profit. Some enterprises may break even, others show a loss, some a profit. Here again elimination of enterprises which do not and probably cannot produce a profit should be eliminated

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from further consideration. For example: with dry-farmed barley, alfalfa hay, cotton, navel oranges, and canning peaches as illustrations, to provide a gross income of $2,000 (prices as of 1930-32) would require about 170 acres in barley (yielding 1,500 pounds per acre); 35 acres in alfalfa (yielding 6 tons per acre); 40 acres in cotton (yielding 1 bale - 478 pounds net - per acre); 5 acres in oranges (yielding 250 packed boxes); or 12 acres in peaches (yielding 12 tons per acre).

Financing operations of these crops vary materially -- being about $10 per acre for barley, $50 for alfalfa, $45 for cotton, $400 for oranges, and $175 for peaches.

The farm management approach to a final choice of a type of farming best suited to a given set of conditions is, therefore, largely determined by the process of elimination, until there finally results a type of organization best fitted to all three of: physical and biological environment, financial returns, and personal, as determined by operators' experience, skill, training, and interest.

These statements have particular significance in connection with western agriculture, and especially in California. In the latter state, for example, there are fully 181 crops grown commercially and more than 20 distinct livestock enterprises, conducted under conditions that vary from about 200 feet below sea level (in the Imperial Valley of southern California) to elevations 5,000 feet above sea level; under temperatures from semi-tropical to temperate; rainfall of from 2 inches annually to 120 inches; soils from blow-sands to tight adoves; and various kinds of pests. Experience has demonstrated the feasibility -- and resulted in substantial plantings of crops or running of livestock -- in specific areas. Thus different communities tend to specialize in sugar beets, cotton, or beans; in apples, prunes, almonds, walnuts, dates, oranges, or lemons; in table, wine, or raisin grapes; in truck crops (especially lettuce, carrots, cabbage, and cantaloupes); or in dairying, poultry keeping, or some other form of livestock.

Thus the land planner who contemplates a type of agriculture for any given community faces a job of considerable magnitude, more than the average layman fully realizes or appreciates. The task involves collection of much basic data, and subsequent searching and careful analyses before one can say with reasonable certainty: "This land shall be used for these crops or those livestock enterprises." And (Iagain quote) "To be reasonably certain that the financial outcome will be sufficient to make this type of farming desirable, the average size of the farms to be allotted to operators shall be thus and so in acreage in order to provide an annual income of this and so."

Fortunately with the passing of time we have learned a lot about requirements, possibilities, and methods of testing the financial aspects of agriculture. The planners' responsibility is to know these findings; their task is to apply them to land planning, in order that the future will be as free as possible of the unfortunate mistakes which in the past have at times occurred in connection with both public and private attempts at group colonization. Though agriculture can never be entirely divorced from a certain element of speculation; yet to the extent that such speculation can be eliminated, just so far will the danger of exploitation of land and people be reduced to a minimum.

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LAND USE SERIES:

LAND PLANNING IN RELATION TO THE TAX STRUCTURE

A radio talk by Sinclair A. Wilson, Senior Forest Economist, Pacific Northwest Forest Experiment Station at Portland, Oregon, during the Western Farm and Home Hour, Thursday, September 26, 1935, over Station KEX and nine other stations associated with the Western Division, National Broadcasting Company.

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Early in our national history, an idea was conceived that in order to stimulate immigration and to bring about distribution of wealth among the people with consequent public revenue it would be well for the Federal Government and the several states to pass their land titles to private owners, either by gift or for a nominal consideration.

The thought then was common that where forests and grasses flourished, there farming would succeed; that the forest were to be exploited because the land was needed for agriculture; that the open lands were to be either farmed or grazed as heavily as desired; that in any event the supply of forests, grasses and soils was inexhaustible.

The pioneering spirit of our forefathers carried them from the East out to the plains and into the wilderness, there to set up new homesteads and new communities. An extensive expansion eventually ensued, from coast to coast. Settlements sprang up, some reasonably permanent, some unreasonably temporary, and others with the hope of permanency but without any sound justification for ever having been established.

The movement was dominated by undirected individual preference and by speculation. What constituted wise land use was not an issue. Living was economically simple. Transportation requirements were met by streams, and by trails and rough roads, built largely by individual rather than by public effort. Schools, where they existed, offered only a few short yearly terms of instruction, and were conducted in poorly constructed and equipped buildings, at low cost. Public services of protection, health, and relief were few and were maintained with a minimum of public financing.

As time advanced society advanced, and as society advanced requirements for public services increased. Popular demand dictated that these services be extended broadly even to the remotest habitation. These services meant higher taxes and hence called for an increased cash income from land. In obtaining them, little or no thought was given to productive capacity, ability to pay, and permanency.

Within broad areas of highly productive agricultural land the situation was met at first by working farms more intensively. But land owners in rough forest areas and in open wastes could not adjust their land program so readily. Oftentimes in the less productive, sparsely settled districts, the average cost of elementary schools exceeded $200 per pupil per year, while in the more productive densely settled district it was frequently as low as $85. Road-construction costs often mounted to $10,000 and more per habitation in sparsely settled districts, while they were often below $1,000 per farm in the densely settled.

Many farms were worn out by poor agricultural practice, many forest areas were denuded by excessive cutting, and many grazing lands were left almost sterile by overstocking. Other farms, other forests, and other grazing lands were acquired and the process repeated. The urge was for cheap land. Settlers filtered into the cut-over lands and the remaining virgin forests, and out upon the open spaces, where soils were poor and climatic conditions adverse, there to attempt intensive farming, without thought of future economic consequences. To added tax load brought on by

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increasing costs of local government induced an even more rapid liquidation of timber resources and led to breaking sod on grazing lands in a vain attempt at crop production. The so-called "inexhaustible" supply of forests, grasses, and soils was being exhausted in many regions.

Today millions of acres of lands have reverted, in devastated condition, to the States and the counties for unpaid taxes. The natural sources of revenue needed for the support of public institutions have been overdrained. Within districts containing large proportions of reverted land stranded populations require schools, roads, and other public services but are unable to support them. The costs of these services, plus an increasing proportion of State and county general taxes, must be born by the remianing tax payers.

The problem is sufficiently broad to be of general concern. Its solution lies in both taxing lands somewhat in line with their long-term producing capacity and putting lands to their best uses so far as these are known. Land planning is tied up with the tax structure.

The situation calls for a planned development of areas where opportunities exist for more intensive uses and where the costs of needed public services are within the tax-paying capacity of the beneficiaries. It calls for rehabilitation of blighted areas so that the people living on those areas may enjoy and share in the costs of social advantages which come through tax-supported institutions. It calls for plans to resettle people, aiding them to leave areas where there is no possible hope of their paying in taxes the public costs incidental to their presence and move to areas where there is hope and promise. It calls for plans to prevent, so far as possible, a repetition of the errors of the past. Summed up, the solution is a matter of planning what to do and what not to do, in the light of past experience interpreted in terms of present requirements and probably near future demands.

In the Pacific Northwest many agencies are engaged cooperatively in making and executing plans for economy in government, conservation of present sources of public revenue, and restoration of values for future use. Among these agencies are the Regional, State, and county planning commissions, the Resettlement Administration, the agricultural and forest experiment stations, the United States Forest Service, the Soil Conservation Service, the State forest, agricultural and educational departments, chambers of commerce, and institutions of higher learing. The planning is being done for the sake of individual and community welfare.

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LAND USE SERIES:

LAND PLANNING AND WATER CONSERVATION

A radio talk by Paul A. Ewing, Irrigation Economist, Division of Irrigation, Bureau of Agricultural Engineering, broadcast on the Western Farm and Home Hour, Thursday, October 10, 1935, through Station KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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KADDERLY: Mr. Ewing, we are all pretty well aware that many agricultural sections of the West have experienced a severe curtailment of their irrigated area during the last few stressful years. Do you have any definite information on just how extensive that curtailment has been?

EWING: Not for all our states. However, we do know that for the irrigation districts of California alone this has amounted to almost one-fourth the 1929 acreage. For the entire State, the reduction may have amounted to as much as a million acres. I suppose that for the whole group of irrigation states perhaps twice or three times that decline would appear in a comparison of 1929 and 1934 statistics, notwithstanding the fact that a notable increase in the number of all farms took place in this period.

KADDERLY: How do you account for that falling off in the irrigated acreage

EWING: I would say that only part of it is due to the effects of the economic depression not corrected by the operation of the Agricultural Adjustment program. In a more important degree, it is chargeable to the long-deferred natural adjustment of soils and water.

Until of late it has always been a readily accepted axiom that the agricultural possibilities of the West are limited only by its water supply -- that its soils are naturally so fertile as to produce bountifully it only water can be brought to them.

KADDERLY: Well, isn't that the broad assumption on which many of our largest irrigation projects were financed and built? Doesn't it still hold true?

EWING: Yes, it is the assumption --- but it holds true with qualifications. We are discovering at this belated date that the assumption has been at fault in many cases -- that even abundance of water does not assure successful cropping, for the irrigable lands may not be fertile after all. Hence it is that we hear the Bureau of Reclamation predicting the "immediate effect" of the building of the Central Valley project in California to be "the withdrawal of water rights from 240,000 submarginal acres which no longer can be irrigated or cropped", and asserting that in Nevada "the Humboldt project program already has resulted in the purchase of water rights of 59,715 acres ..... of a submarginal character. The Water withdrawn from this acreage will be applied to better lands already under cultivation." I understand that a healthy correction of this sort has recently been made in connection with the financial rehabilitation of several typical districts in Oregon, and doubtless there are many other equally significant instances in other States about which I have not heard.

KADDERLY: In other words, we are admitting that mistaken assumptions have been made in judging soil productivity?

EWING: That's what it amounts to. Furthermore, some of those mistakes had disastrous consequences to the success of really good acres when good and poor

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were burdened indiscriminately with irrigation construction costs. Here and there we are even yet developing at high expense copious water supplies, but are disconcerted by finding not enough correspondingly fit land upon which water may be used economically. Development of water supplies in such cases, even under the stress of labor-providing necessities, can lead to no permanent benefit to the Nation or even to the localities.

Perhaps it is in point here to mention the increasing attention now being given to the possibilities of transferring water supplies from their natural watersheds to other valleys, in the interests of better utilization of both water and land. Some large projects of this sort are under consideration, and more are to have early attention. Such developments usually involve extensive complications, legal as well as engineering and financial, but many of them will fit logically into long-range land use planning, and it is certain that we shall see considerable activity involving such transfers before long.

KADDERLY: How about our estimates of available water supplies - have mistakes been made on that side, too?

EWING: Yes, some bad mistakes have been made also by way of over-estimating water supplies, which we should be able to avoid in future planning. Moreover, in almost all the valleys where chief reliance has been placed upon underground water, that long-accumulated storage has been steadily overdrawn even while everybody knew what was going on.

KADDERLY: Why have we made such mistakes; has there been no way to prevent them?

EWING: Well, not always. But we can correct some of them. However, the correction of these errors always involves complications which do not appear at first inspection; it is difficult at best and sometimes seems to be downright impossible. Hence this land-planning program upon which we are now embarking must take these admitted mistakes into account, and much of its effort must be directed at operations of a salvage nature, rather than toward expansion.

KADDERLY: In a few words, what do you think the procedure should be?

EWING: First, the ultimate agricultural use of the West's water must be by the best land. Second, water-producing areas must be reserved so that their treasure will not continue to be wasted. Remaining reservoir sites must be controlled by the Nation and the States, so that the maximum opportunity for storage shall exist. Third, irrigation practice must be studied and improved, so that available water shall be used economically and to the benefit of the largest number of people. A better winter and spring accounting must be made of the amount of snow stored in the mountains, so that the farmers dependent upon it may plan their crop and irrigation programs with greater assurance than they have had heretofore.

It is still a sound assertion that, given our persisently industrious sunshine, plenty of water, and a productive soil, the Western farmer has a combination difficult to beat.

KADDERLY: Lot's of sunshine, plenty of water, and a productive soil -- the big three!

EWING: Exactly -- but we need all three. That's the point. The hard times from which I believe we are emerging should have taught us that. The sun, plus plenty of water is not enough. The sun, plus a rich soil is not enough. The sun --- a productive soil and adequate water is what we must have. In future planning we must be sure we get all three together in our irrigated sections.

We must demand the most from the water we already have and from that which we may still find.

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LAND USE SERIES:

LAND PLANNING IN RELATION TO IRRIGATION AGRICULTURE

A radio talk broadcast in the Western Farm and Home Hour, Thursday, October 17, 1935. Prepared by Dr. Carl S. Scofield, Bureau of Plant Industry, U. S. Department of Agriculture, and delivered by Dr. Frank M. Eaton, Rubidoux Laboratory, Riverside, California - speaking from KFI, Los Angeles.

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We have some twenty million acres of irrigated land in the United States - and about 18 million of those irrigated acres are in the eleven Western states. On some of them successful and profitable agriculture and home-making have been achieved. There have been many failures, however, some partial and some complete. Some of these failures have been due to adverse natural conditions that have, so far, proved insurmountable. Other failures have been the result of bad management or of the lack of understanding. Some irrigated lands, once productive, have gradually become unproductive because of salinity conditions.

In planning for land use with irrigation we must consider not only the problems and potentialities of new areas, we must deal also with the immediate problem of liquidating or reconditioning a substantial part of our present irrigated area. At the present time the demands in respect to existing irrigation projects are unquestionably the more urgent. It appears to be undeniable that in many of these existing projects some areas should be retired from use. Other areas should be extensively reconditioned as by drainage, by rebuilding the structures of the distribution system, or by providing additional or improved water supplies. Those operations call for wise planning, for clear understanding, and for well considered and firm action.

It is hardly open to argument that our first responsibility in planning is to consider the urgent needs of our existing irrigation projects on which people have already established their homes and invested their money and the labor of years. It must be recognized that mistakes were made in the original plans of many of these projects and, so far as may be, these mistakes should now be corrected in the light of our experience and present information. Our primary objective should be to demonstrate conclusively that our irrigation agriculture can be so planned and so conducted as to endure through the years as a sound and dependable feature of our social structure.

Our irrigation agriculture has come to occupy a place of importance in our national agriculture that is not always fully appreciated. Nearly half of the area of our country is arid or semiarid. This vast area is enormously important, however, because it contributes a large part of our national requirements of bread and meat from its extensive dry farms and grazing ranges. Because of the hazards and losses caused by recurring periods of dry years, these dry farms and ranges could not be efficiently utilized without the existence of the interspersed irrigated areas which provide support and refuge during prolonged drought and from which the surrounding land may be quickly reoccupied with the return of favorable seasons.

It is not enough, however, that we limit our planning for irrigation agriculture to those lands and waters already in use. We must consider also the resources that remain undeveloped. In doing this it seems advisable to approach the problem from the standpoint of the water resources because we have vastly more land suitable for irrigation than we have water to use on the land. During the

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past 75 years irrigation water has been made available to some 20 million acres of land in this country, but the end is not yet in sight. We still have very large undeveloped resources. Some of these were regarded, a quarter of a century ago, as economically infeasible. But with our progress in the development, distribution, and use of hydro-electric power it has become possible to liquidate a substantial part of the cost of water storage through the sale of electric power.

Furthermore, the increasingly general availability of cheap electric power has made it possible not only to lift surface waters to adjacent higher productive lands, it has also made it possible to utilize large supplies of underground water by pumping. Plans for the more complete utilization of our resources of underground water call for the immediate and serious consideration of three classes of problems: (1) The extent and availability of these underground water supplies and the rate and sources of their replenishment; (2) the enactment by the States of legislation in respect to the appropriation and use of these underground waters; and (3) the investigation of their quality and suitability for irrigation use.

In this connection also there is urgent need in the planning program for a better understanding of the possibilities and limitations involved in the reuse for irrigation of the drainage and return-flow waters from irrigated lands. One of the chief hazards to the permanance of irrigation agriculture lies in the salt content of irrigation water. The accumulation of this salt in irrigated land not only restricts or prevents crop growth, it may so impair the physical condition of the soil as to render it permanently unproductive even if the excess salt is ultimately removed by leaching and drainage. Salt injury to crops and soils is preventable, and one of the major objectives of the wise planning of water use is its prevention.

We have, then, in formulating plans for our irrigation agriculture to consider first the methods and the means by which to rectify the errors of planning and of operation that have resulted in failure on a substantial part of our present irrigated area. We have also to utilize intelligently the fruits of this experience in planning for the further task of utilizing our undeveloped water resources both surface and underground. A permanently successful irrigation agriculture calls for the wise use of good soil and good water. Our experience has amply demonstrated that optimism alone is not enough.

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Land Use Series:

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LAND PLANNING IN RELATION TO WESTERN RECLAMATION

A radio talk broadcast in the Western Farm and Home Hour Thursday, October 24, 1935, by E. C. Larson, Bureau of Reclamation Engineer, Department of the Interior, (through Station KDYL and nine other stations associated with the Western Division, National Broadcasting Company. Speaking from Salt Lake City.)

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Planning for wise use of land in the arid west presents a problem that does not exist in any other section of the country. It arises from the fact that the natural rainfall in this region is not enough to sustain a stable and intensive agriculture. The natural water supply must be supplemented by irrigation.

Land is plentiful in the eleven western states, but water is scarce. As a consequence the title to the use of water has become more valuable than the land itself. The individual farmer, whether he operates under an irrigation canal or otherwise, is deeply concerned with the proper method of tilling his soil, of rotating his crops and of caring for his livestock, but the welfare of the whole western community is dependent upon intelligent application of its meager water supply.

The welfare of the entire west is bound up with sound, long-range planning for the most advantageous use of its water on its best lands. Without such planning the economy of the area never can reach its most efficient stage.

If a stream carries enough water to irrigate only 100,000 acres, and 1,000,000 acres are available along its course, grave consequences depend upon the choice of the tract to which the water shall be applied. It would be wasteful in such case to turn the water onto poorer or mediocre land when excellent soil thus would be consigned forever to the desert. If the quality of all the land were the same, it would be improvident to irrigate a section far removed from markets when a site for a development might be found nearer at hand.

The western problem is not generally understood in sections where all good land is tillable and the farmer thinks about his water supply only when rain fails his growing corn.

All the implications of this problem were not recognized at once by the western pioneers. Early irrigation developments sprang up in the flats wherever water could be found close to mining camps and villages. Little thought was given to a planned development of the limited and extremely valuable water supply.

It was not until 1902 that Congress recognized the necessity of sponsoring western reclamation development and of bringing some semblance of order out of the conditions that arose from haphazard appropriation of water for irrigation.

In that year the Bureau of Reclamation was established. Funds from the sale of public lands in the western states were set aside for the

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irrigation of their valleys. The need was apparent for a Federal agency to coorelate the diverse interests that were pulling and hauling at their water resources. Local jealousies and petty differences were delaying desirable developments.

Interstate streams especially needed attention. A higher authority was required to mediate differences among those with a claim to their waters. The solution was found in interstate compacts that have permitted orderly development. Of these the Colorado River Compact, ratified by six of the seven states in the Colorado Basin, is the most important. Without the compact Boulder Dam never could have been constructed and the Colorado River today would remain the outlaw it once was, ready to destroy those who dared try to use it.

Officials of the Bureau of Reclamation quickly realized that an uncontrolled river provided an insecure water source for the irrigators, who had found to their sorrow that many of the western streams carried an overabundance of water in the spring but were nearly dry soon after the floods had passed. Storage dams provided the only means of regulating the rivers, and of these the Bureau has built 68 and now has 11 more under construction. Most of these dams were built to rescue existing irrigation districts from floods and drought. Established communities were thus assured an adequate water supply throughout the year.

The Bureau, has, however, undertaken a few new developments, and in these cases an earnest attempt has been made to plan them so that they will return maximum benefits to the west.

The Bureau believes firmly that experience has shown that best results are obtained from irrigation when farms are of a size that can be managed by one farm family. It has discovered that one family can not manage as large an area of intensively cultivated irrigated land as the same family might crop in an area where irrigation is not required. At the same time, it has been shown conclusively that the fertile lands of the irrigated west will produce more, acre for acre, than will the lands of other regions. Thus, while the reclamation farmer is generally limited to 40 acres, this 40, through its fertility and the long growing season, will give him a return comparable to that of farmers anywhere.

The west is destined to have a large population. Its growth will be limited only by its water supply. Any waste of water makes more restricted the limitations already fixed by nature. In an area where water is the principal natural resource, failure to use any that can be utilized is waste just as surely as is its misapplication.

It is evident that an exact knowledge of the potential resources of the streams in the arid regions is necessary for their well-planned use. Probably nowhere in the world has the water supply been studied as carefully as in the west. A great city like Los Angeles, for example, could not have developed without intelligent water planning. Just as the people of Los Angeles have proved themselves to be far-sighted in the utilization of their available water resources, so must all of the west, whether urban or rural, plan today for what tomorrow may bring.

The western cities need farm areas from which to draw their food supplies. It is as important to the urban centers that their backcountry be developed wisely as it is to the farmers themselves. Inability to find provisions within the radius of cheap transportation will retard the growth of cities as effectively as nature has restricted western agriculture through her niggardly water supply.

Already the western cities are finding it necessary to reach beyond the Rocky Mountains for certain of their staple foods. During the last five years it has been evident to students of traffic that the point of division between west and eastbound shipments of the great staple food crops on western railroads is being pushed farther east as Pacific Coast demands expand. Western cities now are reaching into the Mississippi Valley for pork and pork products, butter, wheat and potatoes. This means an increase in price to the consumer due to long and expensive hauls. It places the western city at a disadvantage that can be overcome only through the development of agriculture near at hand.

Few streams in the west remain wholly undeveloped. Fortunately, there still remains surplus water in many of them. The use to which their waters will be put is of paramount importance to city and farm folk, to the counties, the states, and the nation, for the welfare of all is involved.

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Land Use Series:

LAND PLANNING IN RELATION TO SOIL EROSION CONTROL IN CALIFORNIA

A radio talk by Harry H. Reddick, Regional Director, Soil Conservation Service of California and Nevada, during the Western Farm and Home Hour, Thursday, October 31, 1935, over station KFI and eight other station associated with the Western Division, National Broadcasting Company. (Speaking from Los Angeles.)

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An historian once said that the greatest mark of any civilization is the ability of its members to plan a project before it is executed. While we as a nation and as citizens of the West have every right to consider ourselves as members of the greatest and most progressive civilization that history records, still - when we look inquiringly about us, we find certain indisputable facts that might class us as land exploiters, whose planning shows little consideration or knowledge of the natural laws that definitely shape the course of agriculture existence.

The place of erosion control in successful land planning equals in importance the careful study of raw material sources that precedes the establishing a ten million dollar plant in a community without first assuring himself that there was lasting supply of raw material to keep his factory busy for years to come -- yet today farming communities, that may rightly be compared to ten-million-dollar food factories, are often set up with little thought of guarding their supply of raw material - the rich soil. Erosion control is soil insurance, and is as definitely an essential part of any land planning operation as a lock on the door of a treasure vault, because after all, the soil is the farmer's working capital.

Of the 30 million acres of farm lands in California, over 74 thousand acres have already been destroyed for further crop production by erosion, and no less than 16 million out of that total of 30 million acres are being damaged in varying degrees with each succeeding year. While these figures are based on a survey of California, I assure you that the problem is by no means confined to this one state, but is equally serious throughout the West, from Washington, in the North, to Arizona, Nevada, and New Mexico on the eastern borders of the Pacific Slope.

I said a minute ago that erosion control is soil insurance, and I now add to that - there is no investment that any individual, group or nation can make that will equal in return that which is spent for insuring the continued fertility of the farm lands.

"But he's talking about the future, when we'll be dead and gone. How about today?" someone is asking. One of the most important phases of soil conservation work in land planning is the retirement of marginal lands from cultivation. The prevention of economic suicide on marginal land is one of the primary objects of land planning. The prevention of harmful exploitation of marginal lands is one of the primary objects of the Soil Conservation Service. Why? To answer that it becomes necessary to go a little deeper into the real definition of marginal land. Marginal land is not necessarily without value, or necessarily devoid of good rich soil, but it is usually

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marginal only because the crop return from the land will not justify the expenditure of money and labor for safe cultivation practices.

Throughout the farming areas of the nation we hear about an over supply of various food stuffs, yet there are millions of acres of marginal land in production that is being destroyed by erosion because of improper cultivation. This land, in all justice to the future generations, should be in pasturage or trees, awaiting the time when the increasing demands for food stuff will make it economically practical to farm it wisely and safely. To refer to any land as completely worthless is an error. The steep rocky sides of the snow-capped Andes have been farmed continuously for four thousand years, because those ancient Incas, whose agricultural terraces are among the wonders of the world, realized the value of good soil, and planned to hold it in place. Four thousand years are a long time, especially when we consider that formerly rich, fertile hillsides are being abandoned in the United States after as little as ten years from the time they are first cultivated. The destruction of these American farms can be blamed only on the fact that the control of soil washing has not had a definite place in the land planning considerations of those who till the soil. Marginal land should be, and is, when not abused, good soil in storage for future generation. Over five thousand acres of marginal land in California have already been taken out of cultivation and retired as part of the soil conservation program.

One of the major purposes of land planning is to study the various factors influencing the successful working of the soil and to recommend such changes in cultivation as will aid in bringing about a general and permanent improvement of agricultural conditions. Since permanency must be the most desired goal of any land improvement program, it becomes automatically true that a complete understanding of the factors influencing soil erosion is imperative if such a program is to succeed. In order that this essential information may be made available to those who have the best interests of the nation's farm lands at heart, the Soil Conservation Service, of the United States Department of Agriculture, has for the past two years been conducting surveys and experiments to determine the effect of climate, soil texture, vegetation, and cultivation practices upon the productiveness of the land. We have at this time a growing fund of such information and a staff of specialists devoting their entire energies to the prevention of soil washing on the sloping lands of the West. Secretary of Agriculture, Henry A. Wallace, recently said, "Soil erosion control, to be effective, permanent, and economically feasible, involves more than the use of vegetative and engineering methods. It involves, also, general land-use planning, proper crop rotations, controlled live stock grazing, and the application of other sound farm-management practices." Mr. Wallace's statement explains why the soil conservation program is designed to fit in with and be a part of the land-planning programs from the Palouse wheat district in the northwest, through the grazing lands, and including the fruit and vegetable producing areas along the Pacific.

With the exception of the comparatively level lands, soil erosion is now, or will likely be in the future, a problem if it is not recognized as a menace from the beginning. A greater acreage of sloping land will be placed in cultivation with each succeeding year, due to the growing demand for western food products. The careful planning of these new areas will have much to do with determining their value to the individual, to the State, and to the Nation. The early recognition of soil erosion control as a vital part of successful land-planning will insure those acres, and the people who live on them, of continued good soil and prosperity.

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Land Use Series:

LAND PLANNING IN RELATION TO SOIL EROSION CONTROL IN THE NORTHWESTERN STATES

A radio talk by W. A. Rockie, Soil Conservation Service, during the Western Farm and Home Hour, Thursday, November 7, 1935, over station KGA and eight other stations associated with the Western Division, National Broadcasting Company. (Speaking from Spokane.)

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In a region that is as varied in conditions and in land use as is most of the Pacific Northwest, land planning on any type of land must, for any constructive or long-time plan, involve consideration of all of the adjoining and nearby lands -- whatever their types and uses may be. The cultivated lands cannot be considered as a separate, unrelated unit any more than can an individual area of range or of forest lands. Planning for all types of land must be knit together into a single integrated plan that recognizes both the possibilities and limitations in the use of each type of land.

To be specific let us consider our soil conservation project on the South Palouse drainage. This area includes the cities of Pullman, Washington and Moscow, Idaho. The farmers here are producing a crop of wheat and, to a lesser extent, of peas. Summer-fallowing in alternate years is a general custom. This system of land use is inflicting terrific damage upon these cultivated areas.

Since the rainfall in this region is nearly all concentrated during the winter months the erosional damage occurs during that period of the year. This damage is greatest, of course, on the steeper slopes and decreases with increasing flatness of the land. A considerable percentage of the upper and steeper slopes on nearly every farm has lost all or nearly all of the topsoil, leaving a heavier, more compact, and more clayey soil exposed. This clay subsoil absorbs a very small proportion of the rainfall. The greater part of the annual precipitation which falls on this subsoil is lost as immediate run-off. Erosion on such lands is increasing, while productivity of those same areas is rapidly decreasing.

Erosion control is certainly a very definite phase of land planning in this area. Our plan for erosion control on these farms is centered around the removal, from annual cultivation, of the badly eroded and actively eroding upper and steeper slopes, and the confining of this annual cultivation and cropping to the lower and less steep portions of the farm.

We are endeavering to cause as much of the water as possible to soak into the ground at or near where it falls. By various means, either vegetative or mechanical, we are trying to promote the absorption of the water that has been surface run-off. We are seeding down the draws so that all run-off must necessarily be slowed and strained.

Every feature of our work must take into account the fact that the farmer has a large investment. Until he is convinced by adequate demon-

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stration of the benefits of using his land differently, he justifiably questions any new or changed plan. Besides convincing our farmers of the financial advantage of using the land differently from their accustomed way, we must, because of the ruggedness of the Palouse topography, plan the use of the retired acres so that they can be practicably handled by their owner.

Land planning must take into account these as well as many other factors not enumerated. No single phase of our present farming methods can be entirely ignored. Each one of the hundreds of individual operations in farming must be considered and weighed relatively before any one can be counted out as wrong.

The character of land use in the Pacific Northwest must sooner or later be largely governed by a viewpoint that includes soil conservation — not only on cultivated lands but on the adjacent forest and range lands as well. If that viewpoint is not voluntarily adopted the time will probably come when it will be done under Federal or state regulation, or both. It will probably become customary to permit only safe and sane use of the land. Proper use of our lands will be a far cry from the present improvident methods of using our farm, range, and forest areas. The land owner, whether it is you or someone else, probably will no longer be able to use his land exactly as he wishes. The effects of its use upon neighbors, upon the community, and upon the region will control that usage. The individual interest must ultimately bow to the community well-being if our civilization is to have permanency.

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Land Use Series:

LAND PLANNING IN RELATION TO BIG GAME MANAGEMENT.

A radio talk by W. M. Rush, Regional Director, Pacific Region, Bureau of Biological Survey, during the Western Farm and Home Hour, Thursday, November 14, 1935, over Station KEX and nine other stations associated with the Western Division, National Broadcasting Company. (Speaking from Portland.)

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When the first white men came to this western country they found immense herds of big game animals on the plains and in the valleys. Nowhere else in the world lived such numbers and varieties of wild animals and these persisted in enormous herds up to the time of the building of the transcontinental railroads and the following settlement of the rich fertile lands by farmers and stockmen.

It was inevitable that the millions of antelope, buffalo, elk and deer should vanish with the advance of civilization. There was not room for both and the remnants of wild life were forced to the mountainous regions where the soil and climate inhibited agriculture and domestic stock grazing was limited to the summer period. Here the wildlife made its last stand and it is here that we find them today with plenty of food in the summer but forced to eke out a livelihood in the deep snows and severe weather common to the high altitudes of the mountains.

Land planning to provide for this wildlife is a subject that has been given but very little attention until the last few years. In fact the recognition by the general public that wildlife is dependent on the soil and is a land problem still remains to be given. Measures to conserve other resources of this country failed to provide for wildlife even at the beginning of the present National Park system. Yellowstone Park, created in 1872, had for its original objectives the preservation of the waters, trees, geysers, and other objects of outstanding natural beauty, but no protection was given to the elk, deer, mountain sheep, buffalo, moose and other wild animals until 1894. The present herd of buffalo in Yellowstone is largely the progeny of a small herd shipped to this region from Goodnight, Texas, as practically all of the native buffalo were killed by poachers as late as 1900.

Out National Forest system was created without provisions for wildlife. The boundaries were drawn without regard to the needs of winter range for big game animals, and one of the most urgent big game problems of today is the lack of winter range for the herds of wild animals that have grown up on the National Forests. The foresters in drawing the boundaries thought only of trees in those early days from 1900 to 1906 when these National Forests were being set aside, and what little winter range that happened to fall inside was allotted to cattle or sheep. There was no recognized big game problem at that time.

Never at any time, not even yet, has any consideration been shown for wildlife in the disposition of the hundreds of millions of acres of Public Domain. Everyone in the West knows the story of the remaining 180-million acres which is of such poor quality that no one could afford even the small expense of procuring title to it, and it has therefore been subjected to

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such ruthless over-grazing by cattle and sheep that today its value is even less than formerly. Not a single acre of this vast Public Domain has been dedicated to wildlife although it contains the natural range of the singularly unique American antelope, a species particularly in need of additional pasturage if it is to be perpetuated.

The situation today is not one to boast of, and we must look to the future for sensible land planning if our big game is to have the place in American life that it deserves.

All of the National Parks are inviolate game refuges -- no animals are killed within these areas unless absolutely necessary to protect human life or property. However, most of these parks are at a high elevation where winter snows are deep and there is but little forage for big game animals. Management in these areas is practiced but little, or not at all.

The National Forests have large areas set aside for game both as refuges and as winter-feeding grounds, and the Forest Service has been devoting more and more land to game as the herds increase and adjustments can be made on other uses of the land. However, there is a limit to the numbers of grazing animals that the National Forests can support and this limit has been reached, and even exceeded in many areas. Winter range is urgently needed in connection with some of the forests.

Game management consists of practices which result in the rearing of the maximum number of game animals on a given area with a minimum of loss from starvation, predatory animals and disease. Starvation from lack of winter food is excessive in many cases. Predatory animals such as: Coyotes, wolves, bobcats and mountain lions find the game easy prey in the deep snow. Disease enters the picture when the animals become closely concentrated on the range. All of these factors are more or less controllable, winter range being the answer to probably 90% of these losses.

Killing of the surplus animals, over that which the range will support, by hunters is recognized as the most satisfactory method of taking such surplus. Sportsmen spend millions of dollars annually in the hunting of big game and all classes of people benefit from it. The big game hunter buys heavy clothes, shoes, food, gasoline, guns, ammunition and various other supplies and equipment for his trip to the mountains. Sometimes he hires pack horses and guides in order to get beyond the roads for his hunt. Big game has a great economic value directly proportional to the hundreds of big game animals produced. From this standpoint alone the dedication of land for its welfare is justified, and in connection with such other values as the scientific, aesthetic, recreational and educational it is imperative that sufficient land be dedicated to wildlife to insure its perpetuation for all time.

Big game requires about the same sort of pasturage as cattle and sheep, therefore comes into direct competition with the stock industry in many instances. This, at first thought, might seem to be highly disadvantageous to the big game, but due to the fact that western stockmen as a class are the highest type of sportsmen themselves and thoroughly understand the needs of big game, it is usually not a difficult matter to make the necessary adjustments in land planning with the stock industry to provide for big game.

As an illustration may be cited the project that is now being planned for the Hart Mountain and Sheldon antelope herd. In northeastern California, northwestern Nevada and southern Oregon there exists probably more antelope than in any other like-sized area in the world. The Charles Sheldon Antelope Refuge, administered by the U. S. Biological Survey, consisting of about 36,000 acres in northern Nevada furnishes an excellent fall and spring range. Hart Mountain, in Oregon, is the chief summer range and the Public Domain and private ranch land east of Charles Sheldon, in Nevada, is the chief winter range for these animals.

Inadequate winter range is the chief problem in nearly all big game management plans and this antelope herd is no exception. The private land within the Public Domain east of Sheldon will have to be purchased, and sufficient of the Public Domain to provide a good winter range will need to be dedicated for this purpose, to solve the problem for the proper maintenance of the antelope herd. On the summer range both domestic stock and antelope can live together without harm to either if the r ange is not stocked too heavily, but the antelope should have exclusive use of its winter range.

The aggregate acreage at present needed for big game pasturage is relatively small. One or two per cent of the range lands in the eleven western states should adequately provide for the big game we now have and insure the herds against the large winter-starvation losses that are occurring with alarming frequency.

Big game now uses summer pasturage in the high mountains which is mostly unsuited to domestic stock on account of inaccessibility and roughness. The animals need, and need badly, small tracts at lower elevations in all of the western states for forage to tide them over the critical winter period. The acreage is comparatively small and its value slight in relation to the tremendous importance of perpetuating sizeable herds of our North American big game animals.

Game Management is a land problem. It must be planned scientifically along with other land uses. The public is beginning to realize its importance and demanding that proper recognition be given to it.

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Land Use Series:

"MECHANICAL PROGRESS AND LAND USE"

A radio talk given by H. E. Selby, Regional Land Planning Consultant, Resettlement Administration, broadcast during the Western Farm and Home Hour, Thursday, November 21, 1935, from KEX and nine other stations associated with the Western Division, National Broadcasting Company.

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Only a handful of hardy and courageous pioneers are still left on the Pacific coast to tell of those stirring early days when slow moving oxen pulled the covered wagons to the last frontier, and broke the sod for the first farms in a wild land of rugged mountains, seemingly endless forests and great plains covered with bunch grass and sheep grass. Yet they are the only ones who can fully realize the tremendous social and economic changes mechanical progress has brought to agriculture and to farm living.

Giant combines drawn by modern deisel tractors now harvest and thresh as much as 50 acres of wheat a day in the northwest wheat regions. Fast refrigerated expresses make it possible for the people in concentrated population centers of the east and middlewest to eat Pacific Coast fruits, berries, vegatables, cheese, poultry products and countless other agricultural commodities. Automobiles, farm trucks, milking machines, radios, telephones and modern heating are only a few of the contributions of mechanical progress perfected since the beginning of the 20th century. About forty per cent of Pacific Coast farmers now enjoy the use of electricity for power and light.

Now let us look at the other side of the picture. While mechanical progress has made amazing strides forward, land planning and study of land uses as applied to large areas has been almost unknown. Mechanical progress in agriculture and land planning must go hand in hand if we are to have a balanced agriculture. While many other factors enter into land planning and utilization, many of the biggest current problems have been brought about almost directly by mechanical progress.

Thirty years ago it took almost half of our population in the United States to produce the food for the nation. Today, largely as the result of mechanical progress, less than a third of our population produces all the food we need and a surplus of many commodities. We are unable to export many of these surpluses at the present time. Some scientists predict that in another generation, it will only require from 12 to 20 per cent of our population to produce all our food and agricultural commodities.

Controlled production under the AAA is a step in meeting this situation, but the rest of the problem is one of land planning. One way to solution may be gradually removing people living on marginal and submarginal land who are unable to make an adequate living but still produce enough enmasse to add to present surpluses. This land could be permanently taken out of production by returning it to its native state of grazing or forest land. Families would be encouraged to locate on available land with a proven production where they would have a chance of an adequate livlihood.

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Modern logging machinery has reduced hundreds of thousands of acres of Pacific Coast forest to an unbroken vista of ugly stumps, broken snags, and heavy brush. Although many logging companies are now working on a perpetual yield plan so as not to completely denude those forest areas, plans must be made for the best utilization of these large cutover areas now existing. Reforestation, recreation areas, and game preserves are a few of the many possibilities.

Tillage implements used in large scale farming have broken up sod on thousands of acres of formerly good grazing land that should never have felt the bite of the plow. Wind erosion and depletion of moisture reserves in these dry range areas as a result of cultivation is causing thousands of acres of this now unprofitable land in many parts of the Pacific Coast to be abandoned. Over grazing on other lands has destroyed the cover of range grasses as tillage reduced available grazing areas. Once again, land planning must put these lands to their best use, probably returning them to grazing areas through seeding of range grasses and erosion control.

There are those of course who say the problems of land use adjust themselves to mechanical progress and eventually are solved by letting nature take its course. Those who advocate letting nature take its course, have not seen or do not wish to see the suffering, privation and even actual want of food and clothing experienced by hundreds of farm families. These families are victims of economic forces over which they had no control.

Land planning as now set up in the Resettlement Administration seeks to prevent where possible the economic loss and human suffering involved in such a policy of letting nature take its course. If an area is destined to become unprofitable it is our purpose to help families in such areas to move elsewhere before they lose their complete life savings and in many cases completely ruin their lives. We aim to help these farm families, whose only fault is that they have become victims of forces they could not control, to become once more independent and self-sustaining members of society. Intelligent study of land-use problems and planning for the future will make it possible to meet and foresee many of the adjustments in land use constantly taking place, and to eliminate the human tragedy incident thereto.

These are only a few of the many problems confronting the land planning and research division of the Resettlement Administration. Because of the rapid and unpredictable changes constantly taking place through mechanical progress and scientific advances affecting agriculture, it is humanly impossible to forecast what may be the best ultimate use of land. But these changes taking place every day, do need careful consideration both as to their present effect on land use as well as the land use of future generations.

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Land Use Series:

BASIC INFORMATION FOR LAND-USE PLANNING IN WASHINGTON COUNTY, UTAH

A radio talk by W. Preston Thomas, Head, Department of Agricultural Economics, Utah State Agricultural College, during the Western Farm and Home Hour, Thursday, December 5, 1935, through Station KDYL and nine other stations associated with the Western Division, National Broadcasting Company. (Speaking from Salt Lake City.)

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Washington County, Utah, generally spoken of as Utah's Dixie Land, located in the extreme southwest corner of the State, has for a number of years been faced with a land and water use problem. This situation had come about as the result of a number of factors. Chief of these was the overgrazing of the public domain, thus depleting the principal source of income of the people of Washington County. Another major problem has been the dividing up of the irrigated land into extremely small farms which has made it difficult for the operators to secure an adequate income.

It was not until 1934 that these problems were attacked from a research standpoint by the staff of the Utah Experiment Station, cooperating with other state and federal agencies. This study recently completed in Washington County is an excellent example of a cooperative study of basic resources of an area.

The aim of the project was to study in detail the land and water resources, and the economic factors as they relate to the present land-use, and as they may enter into a future land-use program. Also to translate the basic information collected into terms of human relationships. The project was divided into four divisions, namely:

1. A classification of the soils of the county according to productivity.
2. The utilization and development of the water resources of the county.
3. The use made of range and pasture lands and feed units produced,

and, 4. The economic aspects to determine the most efficient use of the available land and water and other resources as they affect the people who use them.

The economic aspects of this land-use study undertook to translate into terms of human relationships, the basic information collected by the soil and water divisions. This involved first: the determination by communities of the potential agricultural production and income and the number of people which the area will support under conditions of most efficient use of land, water, and other resources.

The final goal of the project was to increase the incomes and to improve the standard of living of the farm population of the County.

The detailed information secured on the soils and irrigation of Washington County provides basic information for land planning. The soils of the

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county have been classified according to productivity, and the irrigated lands have been mapped to show the crops grown, sources of water supply, topography, slope, condition of the surface soil with regard to erosion and general condition of each farm layout.

According to Dr. D. S. Jennings of the Soils Department of Utah Experiment Station, of the 148,000 acres surveyed, only 38,000 acres were classified as agricultural lands. Less than half of the agricultural land was irrigated in 1934.

From the soil classification of the county, the acreage in each soil class has been ascertained. The exact acreage of productive soil for each community is now available.

When the soil classification of an area has been made, the first step in land-use planning has been taken. The second step in the planning program in an arid area is determining the available water supply and its utilization.

According to the findings of the Irrigation and Drainage Divisions the limiting factor in crop production in Washington County is the water supply and the mal-distribution of the water available. According to Professor George Dewey Clyde of the Irrigation Department, Utah Experiment Station, who was in charge of the irrigation studies, there are possibilities for storage of additional irrigation water. However, even through additional storage, the irrigated area in the county will always be limited because of lack of sufficient irrigation water.

As a result of these investigations, the status of soil and water supply and use, is now known for that County.

In studying the range and pasture use, it was found that the forage from range and pastures in Washington County was equivalent to 90,000 tons of hay, or more than six times the annual hay production of the county. Two-thirds of the forage from range was secured from the public domain, and only 13 per cent from the National Forest. The use of the ranges on the public domain is one of the principal resources of that county. The over-grazing of this land during the past quarter century has vitally affected livestock production and the farm income in the area. Planning the rehabilitation of these ranges is one of the important phases of land-use planning for the county.

The economic information now available for each community in Washington County includes the land uses, the production and distribution of the farm products and the income in relation to the people.

Because the United States has lacked a land policy in the past in controlling the public domain, range lands have been seriously depleted and the farm income has been correspondingly reduced. The available acreage or irrigated land is limited and the average size of farm in the county is less than one-half that of other irrigated farms in the State.

During recent years, after making allowance for generally low farm prices, the average farm income has been extremely low, as a result of the reduced returns from range lands, the very small size of the farm and the large farm population in relation to the agricultural resources of the area.

The average net farm income varied greatly with the community. The average income by communities was in proportion to the resources available and the population of the community.

The surplus labor and the low farm incomes have made it necessary for a large number of farmers in the area to procure part-time employment away from the farm. The principal employment has been road building and the development of the National Parks. This source of income is not continuous, consequently the farmers of the area must look to the resources of the county for their permanent income.

Another primary problem as shown by this study was the large non-farm population residing in the farm communities. Because of the pressure of population against the land, it has been impossible for the younger people of the community to secure farm land in the area and so have been obliged to seek employment as farm hands or in other similar types of work.

The labor requirements for agricultural production for each community were determined in order to measure the number of people needed in the area for agricultural production. This showed that on an average, farm family labor in Washington County was employed only one-half time in the operation of the farm.

By knowing the amount of land and water available and the crop and livestock yields of an area, the total potential production can be determined. By the application of price to the production, the total income for the area can be secured, and when the population is known, the income per family can be calculated. With the basic information on tillable land and water resources, and the production factors now available by communities in Washington County, the average income per family can be measured.

The use of the basic information now available on Washington County's agricultural resources, should be helpful in planning improvements in the agricultural situation in that county.

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Land Use Series:

"LAND PLANNING IN RELATION TO THE RANGE CATTLE INDUSTRY"

A radio talk by William Freeman, President, California Cattlemen's Association, during the Western Farm and Home Hour, Thursday, December 12, 1935, through Station KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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My subject today is of extreme importance to the western states. The range cattle industry is conducted chiefly in the western states, where it is possible to raise and grow livestock by the utilization of native grasses and other feeds that grow naturally on large areas of land, which at this time cannot be economically cultivated. It is estimated that at least 85% of the entire area of these states is suitable chiefly for livestock raising, that is, the production of cattle and sheep. In the State of California it is estimated that livestock raising is second in importance among all industries, being exceeded only by the petroleum industry. Further, about half all the livestock feed used in this state is natural, and which may be described as wild grass.

Land, therefore, is of the utmost importance because it is upon land that grass is produced, which furnishes most of the feed used for livestock production.

Much of the land in the western states, is owned by the United States Government. About 40% of the area of California consists of such federal lands, known as the National Forests and public lands. The forests are regulated for the purpose of protecting the water supply; the timber supply; the production and conservation of livestock feed and for recreation. The public lands are chiefly useful for grazing. Livestock grazing utilizes by far the greatest acreage on such lands, and the Federal government believes in encouraging this use of these lands in order to aid in producing the meat supply needed chiefly by city dwellers.

The public lands in California chiefly consist of two large districts. One is known as the Modoc-Lassen district; the other is the Mojave district. These districts were set up this year under the Taylor Act, which is the law regulating the use of public lands. The act is administered by the Department of the Interior. Up to the present time, most of the stockmen of the West appear quite well satisfied with this act. In order to graze on these lands, it is necessary to secure permits from the Department, and a large measure of local control has been permitted to date, so that the stockmen may iron out their own differences under the general supervision of the department. Later on, fees will be charged for the use of the public lands. The stockmen are taking considerable interest in this particular regulation, and practically all of them believe public lands regulation will be beneficial to both the users of these lands and the public. The problems confronting an administration commencing such an important work are of course very difficult.

The National forests for a number of years have been regulated by the Secretary of Agriculture. The stockmen who used these forests are known as permittees and pay grazing fees set by the Secretary, which is contrary to the belief of some who think that no charge is made for use of the forests. The Secretary also determines the number of head of animals which may pasture

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in specified areas. It may be said that land planning has been in vogue on the national forests for some time.

It is possible that many persons believe that cattlemen are not conservationists, and that they must be carefully watched, or else the land of the country will be ruined. I can assure you that such is not the case with the organized cattlemen. Thus in 1931, the California cattlemen adopted a resolution asking the United States to regulate the use of public lands. Further in 1933, a law was adopted by the California legislature, providing for the regulation of public lands in this state, and this particular law was strongly supported by the livestock producers themselves. A similar law was passed by Nevada in 1931. Last year, Congress passed the celebrated Taylor Act, providing for public land regulation, and this has now taken care of the problem which the cattlemen in California and Nevada endeavored to solve by State legislation, this however, will not be needed now to the same extent as before the adoption of the Taylor Act.

It is expected that Governor Merriam will soon appoint a state planning Board for California and inasmuch as such a large part of the land of this state is suitable chiefly for grazing, the organized cattlemen will take a tremendous interest in the work of this Board. Obviously if a better use can be found for land, the cattlemen will certainly want to know about it. Even now the cattlemen are eagerly awaiting the results of important scientific experiments relating to land use in California.

It has been definitely proven by scientific experimentation that conservative grazing and browsing by livestock on the range strengthens the grass and other vegetation growing thereon, and causes it to expand its root system thereby causing the retention of moisture in the soil and preventing soil erosion.

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Land Use Series:

LAND PLANNING IN RELATION TO FOREST MANAGEMENT

A radio talk by J. H. Price, Associate Regional Forester, U. S. Forest Service, during the Western Farm and Home Hour, Friday, December 13, 1935, through Station KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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A few days ago I had occasion to visit a West Coast lumbering city, and in the course of the visit made a tour of the community with a friend who is an old-timer there. He told me briefly the history of the place, how it had developed slowly but surely from a few rough shelters around the first sawmill into a modern city with fine hotels, paved streets, and up-to-date schools; in other words, with those opportunities for work, for leisure, and for advancement that make life really worth living. He pointed out the productive acres around the city that are devoted to various agricultural pursuits. He spoke of the many visitors drawn to the locality over well paved highways on account of the wonderful scenic attractions of the forests.

If time had permitted, it would have been interesting to have made a census of the occupations of the workers of the community and to have determined just what demands and just what dependencies created the opportunities for such employment. I am sure that such a study would have shown clearly that the very life of the community depends upon lumbering and upon the activities necessary to care for the tourists. I am sure that the farmer is able to sell his butter and fruit because the mill worker, the garage owner, and the hotel manager need such supplies to feed their families and their guests, and because he, the farmer, has a railroad outlet to other consuming centers made possible because there are also outgoing lumber shipments.

I have described briefly what I saw on this trip to illustrate how the products from forest and other wild lands play a part, and often a very large part, in the industrial, economic, and social life of communities. Other illustrations could be given and just as striking ones. The citrus industry of Arizona and southern California and the communities which have been built up around it depend upon the adjacent mountains for the water supply that is so very essential. Certainly, the owners of this highly productive land, and the urban dwellers depending upon the business created by its use, have a very vital interest in the management of the mountain lands from which the waters are derived. The cultivated acres in western Nevada are concerned with the water crop of the Truckee River which makes irrigation possible. This same water drives the turbines that light the city of Reno, and furnishes in Lake Tahoe the center of attraction for one of the famous playgrounds of western America. The products of such watersheds touch the lives of many people and govern land values and forms of land management far outside their own boundaries.

This intimate relationship between forest land and the developments on other lands extends even beyond the limits I have illustrated. One has only to read the advertisements of western railroads to know that the recreational opportunities of western America have a bearing upon the welfare of the railroad car builder in Chicago. The cross-cut saws used in felling the Douglas

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fir of the Pacific Northwest are likely as not made in Philadelphia or Indianapolis. The motor boats on our western lakes are probably manufactured in Canton, Ohio or Waukesha, Wisconsin.

But, going back to my little lumbering city I asked my friend how long, at the present rate of cutting, the timber resource would last. His estimate was 40 years. I asked him what would happen then; what would become of the people who depend upon the industry for their livelihood; whether there would still be a market for the products of the adjacent agricultural land; and whether there would still remain an attraction to invite the tourist travel. His answer had to be a decisive "no" to all of these question: that there would have to be a modification of present forest land use in order to insure the preservation of the community as it is today. He recalled to my mind similar situations that have arisen in the past, as in the Lake States, and more recently in certain areas in the northern Rocky Mountains, where, after the harvest of all the merchantable timber, land use of any kind has become no longer profitable and community life has dwindled and often completely disappeared.

In the past we have accepted such occurrences rather passively with the idea that we could always move on to a new and undisturbed field. We are now coming to face quite a different situation. We are hacking away at our last virgin timber storehouses. When these storehouses are depleted, we must depend upon forest crops that we have grown. Already a start on timber growing has been made, but not on an adequate basis. We must so plan the management of all forest lands in the West that there will be a continuous and sustained yield of the many products that we demand. Despite present hum of industry in our lumbering towns, despite present activity of the jobbers of logging machinery in Portland and San Francisco, and despite present employment of men in equipment factories and on the railroads hauling timber to market, we must make sure that the products upon which this industry and this employment are based will be available in the future as needed.

A lot of planning is needed, and a lot of doing is needed, and we as a people can undertake this planning and this doing with more intelligence and more enthusiasm if we keep in mind the inter-relationships between forest land uses and those of agricultural, urban, and other lands. The high price per front foot of land in the commercial district of Seattle is not because that particular soil possesses any miraculous value, but because surrounding it are millions of acres of forest land contributing to industry. Our job as land managers is to keep these millions of acres contributing in perpetuity.

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Land Use Series:

LAND PLANNING IN RELATION TO RECREATION

A radio talk by Lawrence C. Merriam, Regional Officer, Branch of Planning and State Cooperation, National Park Service; broadcast in the Western Farm and Home Hour, Thursday, December 26, 1935, over Station KPO and nine other stations associated with the Western Division, National Broadcasting Company.

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The trend at the present time, in fact this trend has been going on for many years, is toward shorter hours of work. Parallel with this goes the need for the better use of leisure time. How can such time be better used than by getting in closer touch with the outdoors with its recreational values. We think today in terms of a mechanized civilization in which each individual is a cog in a great machine which produces both the necessities and luxuries of life.

We lose sight of the part that the more remote country actually plays in our everyday life, and the additional opportunities in the form of recreation that are available to us there. In sound land planning it is essential that consideration be given to the recreational needs of the public.

We are extremely fortunate in the western states in having large areas in public ownership that are available for recreational use. These include the National Parks, which have been set aside because of their outstanding inspirational, educational and recreational values, the National Monuments which are of historical, archeological or other scientific importance, the National Forests with their extensive areas open to active recreation, the State Parks, and the County and Metropolitan Parks. Some parts of the west are now fairly adequately served by accessible recreational areas. In others due to the rapid increase in population during recent years the facilities are very inadequate.

In sound land planning all areas should be assigned to their highest use or group of uses. Following this scheme large areas should be set aside as parks to preserve for the public their scenic, inspirational and recreational values. In California under the direction of Mr. Frederick Law Olmsted, a very careful survey was made in 1928 to gather accurate information on available areas and other factors necessary to develop a comprehensive, well balanced State Park system. This report served as the foundation on which the State Park system of California has been built. Included in it are areas of Coast Redwoods, Sequoia Gigantea groves, beaches, scenic water falls, areas of high mountain scenery, palm canyons and desert flora, as well as many other outstanding examples that are typical of the various types of California scenery.

The State of Oregon has been working along similar lines and through the State Highway Commission has been acquiring and setting aside for the public enjoyment fine examples of their scenery. The acquisitions along the Oregon Coast Highway are particularly impressive.

Washington, Idaho and Nevada, and other Western States are developing their State Park systems to provide recreational facilities for the public and

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to preserve fine examples of their scenery. In Washington the beautiful Moran Park located on Orcas Island in the San Juan group, the Deception Pass Park, Mount Spokane and other fine areas are included in the State Park system. Idaho has Heyburn Park located on scenic Chatcolet Lake. In Nevada the Boulder Dam State Park and the Valley of Fire are of unusual interest.

There is still, however, a very great need for the planner in laying the ground work for the preservation of more areas for parks and recreation. From the scenic standpoint, consideration should be given to the setting aside as parks of additional areas that are typical examples of the finest in the timber growth in such sections as the Pacific Northwest. The wonderful stands of Giant Douglas Fir and Spruce that are found west of the Cascade Mountains are probably unsurpassed anywhere in the world.

In addition to the desirability of setting aside more areas to preserve outstanding scenic values, there is a real need for greater opportunity for active recreation. This is particularly true near several of the more densely populated sections and where the National Forests and National and State Parks are not readily accessible. It is not essential that these areas be outstanding scenically but they should offer an opportunity for camping, hiking, swimming, boating, fishing and other forms of active recreation, among pleasant surroundings. In cooperation with the Resettlement Administration, the Branch of Planning and State Cooperation of the National Park Service has been working on the development of such areas. The Mendocino Woodlands project in Mendocino County, California, is an example of such a program. One of the main objectives of this project is better land use. The total area is approximately six thousand acres, and it includes cut-over Redwood lands with second growth ranging from five to fifty or sixty years old and areas of the so-called prairie type which are covered with a growth of rhododendron, pine, cypress and many other species, broken up by small clearings which have up to the present been farmed. The proposed development includes facilities for camping, similar to those now available in the State Parks, and a unit for family and group vacationing, consisting of central administration and dining facilities and family cabins. In addition there will be facilities either in the area or nearby for swimming, boating and trails for hiking. Similar projects are under way in other parts of the West. Developments of this type are very desirable in the vicinity of a number of the more densely populated sections.

There is great need, particularly in the vicinity of the larger cities, for facilities to take care of picnicking on week ends and holidays. Those of you who have attempted to find a place to park and picnic on a Sunday anywhere within several hours run of one of these cities will appreciate the problem. In order to protect their property the owners of private lands adjoining highways have in most cases fenced them. If the public is to realize the available values of the out of doors it is important that the States or their subdivisions provide adequate facilities. This could be accomplished through the development of parkways along the main roads, or the establishment of wayside park areas at points that can be developed for picnicking. Parking areas, drinking water, simple picnicking equipment and sanitary facilities are needed in such a wayside development.

In addition to areas that should be set aside as parks for their scenic and active recreational values, the historical and archeological sites should be given full consideration. A good example of the possibilities in the interpretation of historical values for the benefit of the public is now available at the La Purisima Mission in Southern California, where under the CCC program, in cooperation with the California State Park Commission, the main building of the Mission group is being restored. The Mission ruins and surrounding area were acquired by the State and Santa Barbara County, so that the story of the early Spanish influence at this point could be told not only to the people of California, but to visitors from all other sections as well. Such values are of great importance in a well balanced park and recreational plan.

There is probably no section of the country in which the recreational values are as high as in the Western States. The economic values are so important that in some sections the income from the recreational industry is probably second to that from no other source. If these values both to the seeker for recreation and from the economic standpoint are to be retained, sound planning is essential. Haphazard use is no longer feasible.

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Land Use Series:

LAND PLANNING IN RELATION TO MIGRATORY AND UPLAND GAME BIRDS

A radio talk by Wm. M. Rush, Pacific Regional Director, U. S. Bureau of Biological Survey, during the Western Farm and Home Hour, Thursday, January 2, 1936, over Station KGO and nine other stations (KFSD, KTAR, KECA, KDYL, KEX, KJR, KGA, KGIR and KGHL) constituting the Pacific Coast Blue Network of the National Broadcasting Company.

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Fifty years ago, yes, even twenty-five years ago, if anyone had advanced the proposition that game birds in the United States needed to have lands set aside or managed for their perpetuation, nothing but ridicule would have been the answer. The flight of ducks and geese from the northern nesting and rearing grounds to the winter feeding grounds in the South numbered untold millions. Grouse, prairie chickens, quail, doves and pigeons were so plentiful that there were no restrictions placed on the number that could be killed for market or home consumption. It was the wonderful small game supply of North America and was deemed inexhaustible. Of course, big game had to make way for the settlers. There was not room on the prairies and in the valleys for the great herds of buffalo, antelope, elk and deer after the settlers came, but no one thought that in a span of a few years the small game would be crowded out. Yet that is exactly what has happened.

The automobile, with good roads extended to the most out-of-the-way places, has allowed the hunters to reach every part of the country inhabited by game birds, and their toll has been great. Drought and drainage have destroyed a large part of the waterfowl breeding and feeding grounds. Diseases have decimated the populations of waterfowl and upland birds. Predatory animals have not been controlled. All these things have operated to reduce nearly all species of game birds to pitiful remnants of their former numbers. A number of species are on the point of extinction, in fact, local extermination over large areas has already taken place.

The American people will lose a priceless and irreplacable treasure if they allow their native fauna to be depleted further even to the extent of the extinction of a single species. Who is there among us who is not thrilled by the flight of ducks winging their way some thousands of miles from their nesting grounds in the North to their feeding grounds in the South every fall, or in making their return flight in the spring? What is there in the whole outdoors more fascinating? The drumming of a ruffed grouse, the stately walk of the sage hen, and the sprightly, swift movements of the quail are things to delight everyone who goes to the fields and hills. Everyone in the United States could have and should have abundant opportunities to be thrilled by these feathered creatures, yet this opportunity is now becoming more and more rare.

For years, limitations and restrictions have been imposed upon the hunter in an effort to stem the rapid decline. Federal regulations have restricted the hunting of migratory game birds, and State authorities have made laws governing the shooting of other species. Everyone knows how these efforts have resulted in only partial success. Year after year, in spite of the laws that have been made, the numbers of the game birds have become less

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and less until thousands of Nature lovers and others interested in the welfare of our wild creatures have demanded that no more shooting be allowed until restoration of all species is an assured thing.

The fact that these birds must have places to breed, nest, rear their young, rest and feed has just recently been realized by the experts whose job it is to plan the best use of the land in this country for the greatest good of all concerned. Wildlife conservationists had pointed it out long ago, but their voices were not heard in the land councils of the Nation. Game restoration is certainly a land problem. Birds are dependent on the land the same as are cows, chickens, or pigs, and proper provision must be made for them if they are to be perpetuated. Swamp areas with a fringe of cover in the way of brush, grass, or weeds are ideal for ducks; and rough, untillable, dry lands with plenty of brush are the best for upland birds. Such submarginal areas as these will be of great help to game, though they are of little value for cultivation. Conflicts with other land uses are readily adjusted by wise land planning; and the system of Federal refuges planned for the United States takes into full recognition the demands for other uses of land. In some cases, swamps that were drained for agricultural uses were found to be unfit for the production of crops and are now being restored to their former condition for the production of waterfowl. By the construction of dams and the diversion of water to areas unproductive of crops, swamps are created; and in various other ways resting, nesting, and feeding areas are improved along the major routes of migration for the benefit of the ducks and other water birds. Grazing of domestic sheep and cattle, and the cutting of hay around these nesting areas must be deferred until after the birds have nested and their young are old enough to take to the water. Then full use can be made of the forage.

Similarly with upland birds, stock-grazing is highly detrimental to the ground-nesting birds, but after the little ones are old enough to fly they can escape any danger resulting from the presence of cattle or sheep. All species of our native grouse -- the ruffed, the sharp-tailed, the Franklin, the blue and the sage grouse -- as well as quail in some areas, are greatly in danger of extermination and more protection must be given them. Provisions are being made on all of the big game refuges for upland game birds, and in some of these areas native species that have been exterminated will be re-introduced from other sections of the country. The Charles Sheldon Antelope Refuge in Nevada will be a nesting ground for sage grouse and possibly the sharp-tailed grouse, besides being a range for antelope. Included in the Malheur Migratory Bird Refuge in Oregon is considerable dry land above the swampy portion which is an ideal nesting ground for native upland birds.

The land acreage necessary for insuring perpetuation of our native birds is comparatively small, and the American people can well afford to dedicate the small amount needed to perpetuate these valuable and interesting species of North American fauna.

Adjustment in the use of land, such as deferred grazing and light grazing of nesting grounds, will go a long way in solving the problem. The solution does not rest wholly on the Federal Government. States, counties, and even private individuals must do their full share toward creating and improving suitable environment for these birds. Areas of greater or lesser extent exist in every locality that can be made into better homes for game birds. Our various State Game Departments or the U. S. Biological Survey will gladly furnish detailed information to anyone wishing to improve his lands so as to make them more productive of waterfowl or upland game birds.

The situation demands the unselfish aid of everyone in America who is interested in seeing to it that a goodly supply of feathered game is left for future generations. Within the last few years, local extinction of many species has taken place over increasingly larger areas until such species as the sage grouse, sharp-tailed grouse and blue grouse are becoming rarities. In many states these are given complete protection from hunting, without, however, stemming the rapid decline in numbers. What is needed, and badly needed, is land dedicated to the use of these birds; then we can look for an increase in their numbers and not until such time.

Land Planning Councils are wisely considering all forms of our native fauna in their present-day deliberations, which is a most hopeful sign to the conservationists, sportsmen and nature lovers of this country. The very fact that the Planning Boards give recognition to the problem is of itself evidence of the awakening of our people to the importance of wildlife as a part of American living.

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Land Use Series:

REHABILITATION LOANS

A radio talk by Jonathan Garst, director, southwest region, Resettlement Administration, during the Western Farm and Home Hour, Thursday, January 9, 1936, through Station KGO and nine other stations (KFSD, KTAR, KECA, KEX, KDYL, KJR, KGA, KGIR and KGHL) associated with the Pacific Coast Blue Network of the National Broadcasting Company.

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This is the first time I have ever talked over the radio. I heard that it is supposed to give even a strong man Buck Fever, but somehow my mind simply refuses to bridge the gap between this microphone and any great number of receiving sets. The best I can do is to imagine I am talking to one family and the only thing that bothers me is that we don't have a two-way radio connection.

I have been asked to talk about the RESETTLEMENT ADMINISTRATION. In my job as Regional Director for the states of California, Nevada, Utah, Arizona, and New Mexico, a never ending army of facts and figures -- dry facts and cold-blooded figures -- march across my desk. Sometimes I wonder to myself about them. There are so many they become impersonal and meaningless. That is one reason I don't like to work behind a desk. When I get out in the country, however, I find that there is actually something real about this work of the Resettlement Administration.

Today I want to tell you about our Rehabilitation loans. Farmer Jones and his family are down to their last dollar. They have worked hard but have been impoverished, either through drought or any one of the many gambles the farmer must take.

They want to put in a crop. They need a horse or a plow. They haven't enough money for seed or feed. Maybe they haven't enough money to clothe their youngsters to go to school. In former times they might have gotten credit from a local banker, from a friend, or a relative. In fact, this kind of a loan, to a man who had no liquid collateral but could offer his work and his farming ability, is a peculiar American institution. It enabled a poor man to rise. He had no similar chance in Europe. These used to be called character loans and there is hardly a farmer now on the land who wasn't either started or helped over some rough spot in the road by such a loan. Now, such loans are almost unobtainable from the old sources and the Rehabilitation loans under the Resettlement Administration fill the gap.

In the United States today there are nearly 400,000 farm families receiving such assistance. I said 400,000 farm families not 400,000 farm people. The loans, as I said, are made on a character basis; that is, without complete coverage in tangible security. However, they are not made until our Rehabilitation supervisors have worked out a farm plan, showing the use to which the borrowed money will be put and the probable returns the farmer can make under the plan. When the plan has been set up and the amount of money needed by the farmer to get back on his feet is agreed upon, a committee of local farmers and business men review all the facts set out in the plan and also pass on the farming ability of the loan applicant. When the local committee is convinced that the loan will enable the farmer to get a new start on his farm, that there is a good chance that the loan can be repaid, and that there is no alternative

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source of credit available, they pass on their favorable report to the State office. The farmer then gets his loan in the amounts and at the times specified in his farm plan. He is charged five per cent interest. This is not charity. It is a simple, business-like American way of getting a farmer back on his feet.

I have visited Farmer Joneses who had loans last year. They are not hopeless. They are doing the thing they want most to do: to work -- to sustain themselves -- to be self-respecting citizens. I see the record of the loan payments as they come in. I know the money came by hard work, but I know from experience in farming what a glorious feeling it is to be able to make that payment.

We have recently taken over many cases from the relief administration and are trying to work out farm plans to get these people off relief. There is no reason that farmers now working on WPA should not put in applications and draw up farm plans while they continue at their present work. If anyone wishes to inquire about rehabilitation loans and cannot get in touch with their local agents, they can write to the Resettlement Administration in Berkeley, California, or this radio station.

The Resettlement Administration carries on many other activities besides making Rehabilitation loans, though at present that is our most active unit. The other units include the management of the Subsistence Homesteads at El Monte and San Fernando, California; Phoenix, Arizona; and Longview, Washington. The completion of the submarginal land purchases has also been turned over to us and the resettlement of those farmers bought out in these purchases as well as the Resettlement of other farmers, who cannot hope to make a living in the places where they are now located. We have also the job of carrying out the land planning studies which are the ultimate basis of the best use of the country's natural resources. And in addition, we provide headquarters for the Debt Adjustment committees, which are getting overburdened farm debtors and their creditors together to arrange their mutual problem.

I have not time to talk over these other activities today. All of them are concerned with the farmer and his land. And in rehabilitation it might be said our concern is the hard up farmer and his land.

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Land Use Series.

"LAND USE AND WILDLIFE CONSERVATION"

A radio talk by W. D. Staats, Information Adviser, Resettlement Administration, Portland, Oregon, in the Department of Agriculture portion of the Western Farm and Home Hour, Thursday, January 30, 1936, over Station KEX and nine other stations associated with the National Broadcasting Company Pacific Coast Blue Network. (From Portland)

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Few people realize that hunting and fishing are among our greatest natural resources. Each year the turnover of fish and game in America is estimated at around a billion dollars or almost three times the farm value of the annual wheat crop in the United States. Yet according to reliable authorities our game resources are in danger of practical extinction or entire dependence on artificial propagation unless steps are taken to set aside additional wildlife areas and create conditions more favorable to natural propagation of game.

Although established primarily for the purpose of land use adjustment, the Resettlement Administration is playing an increasingly important role in the wildlife conservation picture throughout the nation. About 10 million acres of misused and denuded forest, grazing, and poor farm lands are being acquired throughout the country. These tracts are being developed as forests, parks, grazing areas and wildlife refuges. The 22,000 families now economically stranded in these poor-land areas are being given an opportunity to move to productive farming lands.

It takes little imagination to realize the possibilities for wildlife conservation in such a program. Restoration of the natural cover of forest trees, shrubs and grasses to these desolated areas and gradual retirement of the isolated families, will not only create ideal conditions for native game, but protection of important watersheds will insure the life of the streams that mean existence to the flashing trout and other game fish.

The four land conservation projects of the Resettlement Administration in this region present a graphic example of how vitally land use will affect wildlife. These are typical of what is happening on many similar projects in the West.

Over 600 relief workers are now busily engaged in erasing the mark of fire, axe and plow from two forest conservation areas, including 1,220,000 acres of burned-over and second growth timber land in the Oregon Coast range, and 550,000 acres of burned-over, cutover and second growth forest land in Northeastern Washington. The conservation areas include public domain, some state lands, and private lands being acquired by the Resettlement Administration.

The forest development program entails fire protection measures, restoration of forest growth, stream improvement, hunters' cabins and outdoor camp sites. Reversion to primitive forest will provide cover for additional thousands of deer, bear, grouse and other wildlife. One of the few remaining elk herds on the Pacific Coast, range in the Oregon project. As the scattered settlers retire from these areas, more land will be opened to wildlife propagation and control of illegal hunting will be simplified. Establishment of several game refuges will further aid game conservation.

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Stream improvement programs on both of these forest areas will create ideal conditions for game fish. Ten streams in Northeast Washington will be improved for the native trout through using check-dams, deflectors and other devices to create pools, riffles and shelter favorable to natural propagation. Two hundred miles of stream is included in the program. Sanbars and driftwood at the mouths of Oregon Coast range streams have retarded the migration of sea-run steelhead, cut-throat trout and salmon that enter fresh water streams to spawn. Mouths of seven of the streams in the Oregon project will be opened by cutting channels through the shallows and removing drifts that impede the entrance of migratory fish.

An example of how seriously these log jams and drifts effect our coast steel head streams is found on the Yachats River. Local fishermen estimate that the run of steelheads from the ocean was decreased over forty per cent by a large log and brush jam at the mouth of Reedy Creek... last summer the forest service with the help of C C C workers opened a small channel along one side of the drift and counted almost four hundred steelhead that had been trapped above the drift... unable to return to the sea. The steelhead are able to fight their way up stream during the early spring months of high water but when they are ready to return to the sea in the low water of early summer the drifts have settled on the stream bed and form an impassable barrier. As steelhead return to spawn each year the run is seriously cut down by these drifts. Work on clearing this particular drift will probably begin within the next two or three weeks.

Now let us turn briefly to the two grazing conservation projects established in this region by the Resettlement Administration. The vanguard of several hundred relief workers have already begun the task of restoring the native range cover of bunch and other grasses to 380,000 acres of rough upland, depleted grazing land, and stricken wheat farms in southeastern Idaho, and 200,000 acres of similar land in the semi-arid section of central Oregon. These areas are made up of public domain, some state lands and privately-owned land being acquired by the Resettlement Administration.

Returning these lands to the primitive range cover of 50 years ago will provide new cover and food for the upland bird population that includes quail, sage hens, Chinese pheasants, Hungarian pheasants and a few prairie chickens. Thinning out of the hordes of jack rabbits through systematic poisoning will further increase the grass and native cover. As the families retire from the areas, the upland birds and livestock will have free run of the ranges.

Three federal agencies are cooperating in planning the wildlife phases of our land use projects. These include the U. S. Bureau of Biological Survey, Bureau of Fisheries and the Forest Service. Suggestions and cooperation of other agencies interested in wildlife and game conservation are invited.

The land use areas we have described today are only four of 200 basically similar projects throughout the nation. It is not hard to visualize the far-reaching effects of this program. While the land being acquired by the Resettlement Administration is only a small part of the misused and depleted lands that could not have a better public use than to provide for propagation of our vanishing wildlife, it is a definite step toward pushing back the dark shadow that is slowly rising on the horizon of our game and wildlife resources.

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